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ABSTRACT

Current types of industry-sponsored educational programs, training facilities, and teaching and evaluation methods are described. The history of education and training within the corporate world and the roles of government and unions are traced. Factors that have limited college and industrial cooperation in employee education are also identified. Four types of employee educational programs are covered: (1) job and company-specific training offered in-house; (2) trade seminars and professional meetings; (3) tuition aid programs; and (4) credit courses and degree programs offered by businesses either independently or in cooperation with colleges. Philosophies of educating for work are discussed, as are competency studies conducted by three organizations. Benefits of collaboration for the two sectors are identified. For colleges, industry provides a source of students and an opportunity for faculty to better understand technological changes and skills needed by employees. For industry, colleges offer facilities, faculty expertise, research findings, and structures for awarding credit and degrees. Issues that colleges and industry should consider in deciding whether to work together in educating employees are outlined, as well as ways to identify each other's needs and assets. (SW)

EMPLOYEE EDUCATIONAL PROGRAMS:

Implications for Industry and Higher Education

Suzanne W. Morse

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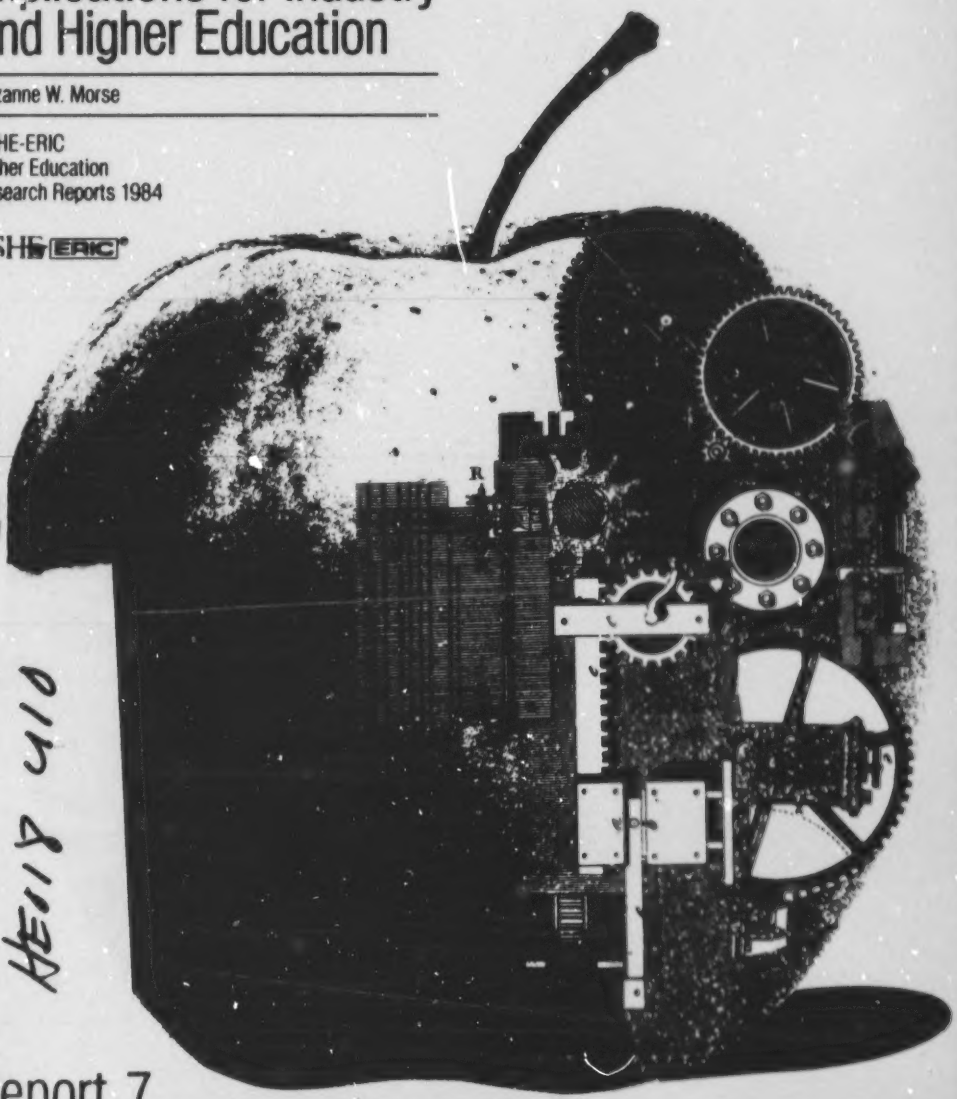

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Employee Educational Programs:
Implications for Industry and Higher Education

by Suzanne W. Morse

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EXECUTIVE SUMMARY

Employee training and education is an important dimension of economic growth—so much, in fact, that employers spent an estimated $30 billion in 1980 to provide employees with a wide range of training and education. These expenditures, roughly half of all spent in traditional higher education in the same year, were for credit and noncredit courses and included degree programs, technical training, personal development, entry-level orientation, and tuition aid programs (Gold 1981, p. 29).

Despite this impressive amount of spending, managers in corporations, government, and labor unions are not educational altruists; they are pragmatists who see the need for additional, almost continual, learning. Work in America is changing. Jobs are more specialized, technology is changing rapidly, competition—foreign and domestic—is more intense, and the country is moving from the industrial age to the information age. With these economic changes has come a demand for a more skilled workforce. No longer can learning stop when traditional education ends; people at all levels and professions must continually upgrade their skills and knowledge.

Why Is Employee Education Important?

This tremendous effort in time and resources has important implications for traditional education, for employers in all sectors, and for the national economy. Traditional educators are concerned that dollars and potential students are moving from traditional institutions to the workplace and that traditional education is missing an opportunity to influence the education of the workforce. With the number of available traditional-age students declining and with federal and state financial support waning, some institutions are faced with an uncertain future. Further, traditional education no longer has a monopoly on granting degrees: Some corporations now offer fully accredited degree programs.

In addition to training and education programs directed at specific job needs, corporations are providing an increasing amount of instruction in basic skills to employees at all levels, and the significant expense required to train and educate workers diverts funds from profits and project development. Employers have entered the education world reluctantly but determined to meet needed skills in some way.

The national economy reflects the productivity of its human resources. No longer are equipment and land primary economic growth factors. It is now estimated that 75 percent or more of the nation's growth in products is attributable to the human factor (Carnevale 1983b). It thus becomes critical to the entire economy that education and training of employees be provided in the most productive and efficient ways.

Both employers and traditional education can benefit from cooperation and collaboration. For industry and business, traditional education offers talented faculty, research data, facilities, and the administrative structure to grant credit for courses and award degrees. Perhaps more important, higher education can train employees without the significant direct and indirect expense of operating a full-scale, in-house training program. For traditional education, industry provides a source of students at a time of declining traditional enrollments and an opportunity for faculty to learn more about technological changes and needed skills in the workforce. Industry-sponsored educational programs have developed effective methods of teaching and learning that can be of benefit in teaching traditional-age students as well as adults. The challenge for both sectors, then, is to find mutually beneficial ways to cooperate in training the nation's workers, managers, and leaders.

What Kinds of Programs Do Employers Offer?

The range of activities and courses offered by corporations, government, and not-for-profit organizations for their employees is quite broad—from two-hour seminars to complete degree programs. Despite the literature's focus on case studies of the more sophisticated, well-developed programs, however, few corporate educational programs equal the caliber of those sponsored by IBM, Xerox, NCR, the Bell System, and Citicorp. More common are short-term programs that respond to changes in technology, the needs of new employees, or changing business opportunities. They can range from a two-hour seminar on federal regulations to a three-day seminar on computer-assisted manufacturing and design. Small and mid-sized companies are more likely to respond to immediate job demands rather than offer a planned, scheduled education and training program. Such companies may be the best candidates

for collaboration, as the more developed programs tend to have less need for outside assistance.

A great deal of activity in employer-sponsored education is translatable to colleges and universities—so much, in fact, that many employer-sponsored courses are now recommended for college credit by the American Council on Education (ACE) and the New York Board of Regents programs on noncollegiate sponsored instruction. Both organizations have compiled directories of sponsoring institutions, courses evaluated, and credit recommendations. ACE has evaluated over 2,000 courses for approximately 200 organizations in its 11-year history (Gold 1981, p. 86).

Given the growth in the last decade of credit-equivalent courses and degree programs, it is safe to predict that more will surface in the years ahead. While indicators do not point to an educational takeover by for-profit organizations, professional associations, and private firms, they will continue to educate a large portion of the adult market in the workplace.

How Can Employers and Traditional Institutions Cooperate?

Real opportunities exist for traditional education to work with corporations, government, and labor unions to educate the workforce—but structures and attitudes must change on both sides. Traditional education must lay down the mantle of being the only real "educator" in society. Corporations, government, and labor unions must recognize that some procedures and administrative rules are necessary to maintain high quality. Both must see that educating adults is different from educating traditional students and that innovative ways are available to teach them. Both sides must communicate and be willing to see another way. And all organizations involved must participate as full partners, sharing responsibility and authority.

The determination of the appropriate role, however, lies with the individual institution or employer, and the real task for the college or university administrator is to find the most appropriate course for the particular institution. For traditional education, such things as institutional mission, available faculty, facilities, financial resources, leadership for the initiative, strengths of the academic program, location, and student services all play a part in that determination. Some institutions simply do not have the mission or

structure to work with adults. But the inescapable fact is that many organizations other than colleges and universities—business and industry, not-for-profit institutions, and proprietary institutions—do have the structure and are actively seeking this audience.

Likewise, employers should carefully examine their needs for training and the resources available at traditional institutions. Such things as the availability of evening and weekend courses, the scope of the continuing education division, the particular strengths of certain academic departments (engineering or business administration, for example), types of fee structures, optional degree programs, alternative credit options and credit for prior learning, and admission requirements should all be addressed. Business and industry should compare costs, including the cost of time spent by a company instructor to prepare a course and overhead. One-time courses are often much less expensive when taught by an outside consultant whose fringe benefits need not be paid. But working with colleges and universities has other, intangible advantages—access to facilities and cultural events, the opportunity to have better information about and access to traditional students when recruiting employees, and a knowledge of new research trends and practices.

Despite the endless debate on who should be doing what to educate the American workforce, it is clear that enough work remains for all the players. The economy is relying more on human capital, our system of postsecondary education and the participants are changing, and demands for education and training are increasing. How to achieve a synergistic, positive relationship between the academy and the corporation is the challenge.

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FOREWORD

Academe's interest in employee educational programs has increased only as they have appeared to be a threat to traditional higher education. This threat seems more real due to several indicators, including decreased enrollments at higher education institutions; an increasing recognition of corporate education programs by accrediting organizations; greater awareness of the number of people in these programs and the total costs involved; and a formalizing of the programs via more standardized teaching methods (e.g., formal classroom lectures), development of specific educational facilities, and the granting of academic credit.

Several factors must be considered in evaluating the effect of corporate education on traditional higher education. First, it must be recognized that since the industrial revolution employers have, either informally or formally, always trained and retrained their employees. What differs today is the way and degree that they are doing it. Second, the type of education taking place today must be evaluated with respect to the educational mission of higher education in general and of individual institutions in particular. Third, some training can be conducted only by employers, because the programs of instruction are small and company specific, the information is proprietary, or the needed equipment, technology, or expertise is not available at higher education institutions.

Finally, a higher education institution needs to review what it has to offer employers. Does the institution already have available, or can it easily develop, courses useful to business and industry? Do the values of the faculty encourage setting up education programs directed to employers' particular needs? Are the employers geographically situated so that education programs are logistically and financially feasible to an institution? Academe needs to ask itself questions such as these to determine whether the corporate world poses a threat or an opportunity, and to assess the potential of establishing closer educational relationships with employers.

In this report by Suzanne Whitlock Morse, program officer at the Charles F. Kettering Foundation, employee education and training programs are comprehensively reviewed. After examining their history and philosophy, Dr. Morse examines corporate approaches to education and the role that can be played by traditional colleges and universities. For those faculty and administrators exploring the pos-

sibilities of setting up or increasing their education relationships with employers, this report will greatly assist the decision-making process.

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INTRODUCTION

Work in America is changing. The competition for information and services is increasing, skills required are more technical, and technology is changing rapidly. This very dynamic economic climate makes the skills of the workforce all the more important.

Since World War II, the demand has been greater for more formal education and training beyond traditional schooling. Corporations, government, labor unions, and trade associations have found it necessary to provide additional postschool training and education for their constituencies. What has emerged is a trend of employee education and training that relies less on traditional forms of education and more on other organizations and methods.

In 1980 . . . the Bell System spent $1.7 billion and educated 20,000 to 30,000 employees per day.

Labeled the "shadow" educational system (Dunlop 1975), employee education and training programs are offered by organizations in-house, by technical societies, by professional associations, by labor unions, by private consultants, and by higher education for credit or not (Lusterman 1977). The American Society for Training and Development (ASTD) estimates that $30 billion or more is spent annually on such programs. In 1980, for example, the Bell System spent $1.7 billion and educated 20,000 to 30,000 employees per day (Craig and Evers 1981, p. 29). Arthur Andersen and Company spent 9.5 percent of total fee revenue (nearly $107 million) in 1982 to educate its professional employees (*ASTD National Report* 1984b). And the federal government provided government-subsidized training to civilian and military employees at a cost of $9 to $10 billion (Fraser 1980, pp. 38–44). Approximately 500,000 civilian employees were trained in 1981, at a cost of approximately $371 million (U.S. Office of Personnel Management 1981, p. 7).

These employee programs span a wide spectrum; they include credit courses, degree programs, organization-specific courses, and technical courses. Training can be voluntary or required and can be held during work hours, after work, or both. Most medium and large firms and agencies now offer formal educational programs to their employees. Countless others offer on-the-job training. Such programs and training represent a significant investment of time and money by individual firms, and the combination of these activities is having a tremendous impact on the workforce (Lusterman 1977).

While a complete picture of the amount, types, or total expenditures of these training activities is not available, the estimated magnitude is so great that it is being called the "third sector" of the educational system, following the public and the independent sectors. These tremendous investments of time and money have caused educational, corporate, and governmental leaders to take notice. The education of the workforce is larger than simply an educational issue or a corporate issue; it significantly affects the future of the country's economy.

Projections by the U.S. Bureau of Labor Statistics show that by 1990 over 54 percent of the population will be 25 to 45 years old, compared with less than 40 percent in this range in 1970 (Lynton 1983, p. 18). Further, 90 percent of the 1990 labor force is already working (Hodgkinson 1982a). These statistics signal two important trends that have implications for employee education:

1. *Most new occupational needs will have to be filled from within the existing labor force. Therefore, as new needs arise at levels requiring advanced education, the emphasis will have to be increasingly on retraining.*
2. *Most individuals will stay in the same job for most of their working life. Employers and educators together face the great challenge of finding ways not only of maintaining the occupational skills of these individuals but also ways to reduce their frustration and increase their motivation* (Lynton 1983, p. 19).

The development of human capital is only one part of the challenge; maintenance of skills is the other, and employee education is part of that maintenance (Lynton 1983, pp. 18–19). Employee education and training is becoming a continual investment over the course of one's work life, and it must be addressed with the best possible resources.

The development of human resources may be the critical key to the country's future. Americans have no real choice but to provide a higher level of productivity for the future, and training for that productivity must go much beyond the currently unemployed to the underemployed and functionally illiterate in the workforce. The people with the least skills—women, youth, and minorities—will need enormous

amounts of training for future productivity (Choate and Epstein 1982).

The responsibility for educating the workforce after formal education has not historically been a primary concern of traditional education. Rightly or wrongly, the educational system has held its mission to the under-22 population. While divisions of continuing education have been in place for years, their clientele and programs have been tangential to the regular academic program. Until recently, traditional educational institutions made little effort to work with industry to educate employees on their terms. But postsecondary education's position as the predominate force in educating workers is now very tenuous—so much so that traditional education, not employee education, is being called the shadow system (*ASTD National Report* 1984a). With three out of four adults being educated outside the traditional system, the responsibility is being met elsewhere.

While numerous reasons explain why broad collaboration on employee education has not happened, two major arguments continue to surface:

1. Educators argue that corporate training activities are not "educational" in the traditional sense. They do not offer academically grounded material and should be considered only as training, not as education. That is, programs offered by industry are linear and company-specific, and they are not cumulative learning experiences.
2. Industry argues that traditional educational institutions are not responsive to industry's needs and have not recognized the concerns of firms and employees, that educators are not willing to adjust their structure to the interests and schedules of working students.

While they reflect both ends of the spectrum, these arguments illustrate a basic philosophical difference about what constitutes "education" and "training" and a question about the kinds of institutions that should have the authority to provide "education." Some observers see corporate education as a complement to traditional education; others view it as a substitute for traditional education's shortcomings. Reality is probably somewhere in between.

While it is generally accepted that the goal of traditional education is individual development and the goal for business and industry is greater productivity, the two are not incompatible. Both industry and traditional education can benefit from cooperation and collaboration. For industry, traditional institutions offer faculty talent, research data, facilities, and an administrative structure for granting credit and degrees. Perhaps more important, higher education provides the option for employee education and training without the significant direct and indirect expense of operating a full-scale, in-house training operation. For education, industry provides a source of students at a time of declining traditional enrollments and an opportunity for faculty to learn more about technological changes and skills needed in the workforce. Further, industry-sponsored educational programs have developed effective methods of teaching and learning that can be of benefit in teaching traditional-age students as well as adults.

The challenge for both sectors then is to find mutually beneficial ways to cooperate in training the nation's workers, its managers, and, ultimately, its leaders. This task is not one that can or should be done alone.

> *When the annals of our time are recorded, it will most likely be found that the two greatest contributions of our time have been the U.S. university and the U.S. corporation: both mighty forces, both uniquely American. If these two forces can go forward together in understanding and cooperation, there is perhaps no problem beyond their joint power for resolution. If, however, they choose to go their separate ways, there is no solution of any problem affecting either that is likely to be long lasting* (Business–Higher Education Forum 1983).

The purpose of this monograph is threefold: (1) to provide a background for understanding why and how the corporate system has developed; (2) to acquaint practitioners from traditional education and industry with the types of employee education offered today; and (3) to review realistic ways that education and industry can work together. In such times, it behooves higher education to become a more effective partner with industry—and it is becoming less an option and more a mandate.

THE DEVELOPMENT OF EMPLOYEE EDUCATION AND TRAINING PROGRAMS

Historically, the training of employees has not been considered part of the nation's traditional educational system. Individual companies offered employee education and training as the need for specific programs arose. It has been only in the last few decades that this educational need has received any significant attention at all. It was not until numbers of dollars and participants became available that publicity was given to employer-sponsored education. But as history has shown, employee education has had a long and important development. Industry, the federal government, and labor unions have significantly influenced the development of the human resources needed to advance the nation economically and in some respects socially.

Origin of Employee Training Programs

The training of workers for specific jobs or positions within organizations has been practiced for many years. Rules governing the apprenticeship system were included in the Code of Hammurabi almost 4,000 years ago. The craft guilds in medieval days increased and upgraded this type of training. The apprenticeship concept has continued today in a reduced way through craft and trade unions and other structures (Craig and Evers 1981, p. 34).

The Industrial Revolution, however, marked the beginning of the decline in apprenticeships. While 300 skilled occupations in 90 construction and industrial trades still take on apprentices today, other training methods have for the most part replaced apprenticeships. Throughout the nineteenth century, industry was more experience based than knowledge based (Drucker 1978, p. 70), and after the nineteenth century, the majority of the skilled labor training shifted from apprenticeships to on-the-job training and formal group training (Black 1979, p. 5). Formal education has gradually replaced experience acquired through the apprenticeship.

In 1872, shortly after the beginning of the Industrial Revolution, Hoe and Company of New York established one of the first factory schools (Steinmetz 1976, p. 6). A manufacturer of printing presses, the company needed to train more machinists to keep pace with the growing volume of business. Other companies followed Hoe and Company's example in establishing training programs, primarily for entry-level workers. Westinghouse began an in-house

training program in 1888, General Electric and Baldwin Locomotive Works in 1901, and International Harvester in 1907 (Craig and Evers 1981, p. 34).

In 1913, 60 representatives from 34 of these companies established the National Association of Corporation Schools (NACS). In 1920, that association became the National Association of Corporation Training, and in 1923, it became the American Management Association (Craig and Evers 1981, p. 34).

The early corporate education and training provided by members of NACS was concerned with all aspects of the firm: sales, clerical, and manufacturing skills. The education and training in the manufacturing area generally fell into three categories: special training that focused on college graduates and on highly skilled technical workers to prepare them for management positions, training for non-English speaking workers, and trade apprenticeship programs (Fisher 1967, p. 11).

Banking was one of the first industries to organize training programs. In 1898, a Minneapolis note teller, Joe Chapman, arranged to have a local college professor teach a course on commercial law to himself and several other bank clerks. Bankers in New York City, Buffalo, Louisville, and St. Louis took note and began organizing courses. They asked the American Bankers Association to assist them in organizing a training institute similar to ones in England and Scotland. These programs gave impetus to the formal organization in 1900 of the American Institute of Banking (AIB). Just three months after the institute was organized, nine local chapters were established (AIB 1983–84, p. 5).

Other industries began employee education programs around the turn of the twentieth century. The National Cash Register Company (now NCR) started its first sales school in 1894. From that beginning, one of the first corporate training centers was established in 1903. Tents were set up at Sugar Camp (company property in Dayton, Ohio) for what was termed the "university under canvas" (NCR Corporation 1982b, p. 8).

A few years later, in his 1914 address to employees, the new president of International Business Machines (now IBM), Thomas J. Watson, Jr., emphasized that the formula for success was the common goal of development—which

could only be attained through education. In 1916, the first IBM sales class was held.*

World War I provided new approaches to training that had not been used before. With the entry of the United States into the war, the Emergency Fleet Corporation of the U.S. Shipping Board was created. The fleet corporation was directed by a former vocational school instructor and was staffed by private-sector personnel loaned to the government. They developed the "show, tell, do, and check" method for on-the-job training, which was widely used to teach industrial skills until World War II (McCord 1976; Steinmetz 1976).

Management education programs expanded during the 1920s. The loss of men in World War I and the absence of satisfactory programs within vocational schools left a large gap in the ranks of middle managers. Business and industry did not have enough trained people to fill the gap. General Electric and other technological companies began to develop their own in-house training through seminars on management for top management officials (Black 1979, p. 6).

In 1926, the General Motors Corporation took over the management of the Flint Institute of Technology and renamed it the General Motors Institute of Technology. The school was incorporated as a nonprofit educational institution with the authority to grant degrees. Baccalaureate degrees in mechanical engineering and industrial engineering were first awarded in 1946. Accredited by the Engineer's Council for Professional Development and later by the North Central Association of Colleges and Universities, General Motors was the only corporation to own and operate a fully accredited undergraduate college for its employees (Mayer 1983).

World War II further influenced training in the United States and emphasized the great need for it. Skilled workers were in great demand at all levels, and for the first time, training was part of the supervisory function. Approximately 2 million plant supervisors and foremen learned methods to train an unskilled workforce. In 1940, the Training Within Industry Service developed training experiences in what was termed the "J" programs—job

*IBM 1958, internal document.

instruction, job methods, and job relations training—used by plant operating personnel to help meet the country's needed wartime production. Later, programs in job safety and program development were added (Craig and Evers 1981, p. 35).

An important management development tool, assessment, had its origins in World War II. The Office of Strategic Services used the assessment center method to select personnel. It involved a series of tests and examinations to determine a candidate's potential for a certain job. American Telephone and Telegraph was the first company to successfully adapt the concept to business use, which was the basis for current applications of the method (Bray 1976).

Also during World War II, colleges and universities offered courses in mathematics, science, and management through the Engineering, Science, and Management War Training Program. In many cases, these programs "became the forerunners of junior or community colleges" (Steinmetz 1976, p. 11).

The 1950s and 1960s were marked by three important developments. First, emphasis on management development and behavioral skills was increased. Supervisory training, human relations training, and organizational teams experienced strong growth during this period, and organizational development became a widespread management tool. Second, the programmed instruction method of teaching and learning was introduced. Variations of this type of approach continue today with the use of microcomputers. Third, firms began to use training as a means to become more competitive in the marketplace. Such areas as management training, sales practices, and sophisticated product information were presented to employees internally or through the assistance of an outside consultant. Industry began to develop internal sophisticated and comprehensive educational systems of courses and training programs for employees (Craig and Evers 1981, p. 36).

By the mid-1950s, the larger corporations were building corporate educational facilities with classrooms and additions for eating and sleeping. The General Electric Management Institute was established at Crotonville, New York, in 1956, the IBM Executive School at Sands Point,

New York, in 1957 (Black 1979, p. 7). Many others followed suit.

During the 1960s, the field of human resources development emerged. The concept included the training of employees at all levels and encompassed generic skills, specific occupational skills, and knowledge gained through traditional education. Its essential purpose was "to improve organizational and individual performance in the workplace" (Craig and Evers 1981, p. 37). During that period, university faculty began to play a larger role in corporate training. Faculty joined with in-house trainers to bring both theory and practice to the corporate classroom. According to many trainers, this early merger of theory and practical experience was a key factor in the success of modern management development programs (Black 1979, p. 7).

The 1970s and the early 1980s witnessed an explosion of commitment and interest in training the workforce.

Also in the 1960s, industry increased its emphasis on research and development (R&D). The most advanced education programs were found in those industries with the highest investment in R&D (DeCarlo and Robinson 1966, p. 10). In 1961, more than 90 percent of the dollars invested in R&D came from only 300 companies. Those 300 firms employed over half the scientists in industry and offered the highest level of education and training for employees. According to DeCarlo and Robinson (1966, p. 10), the ratio of the number of R&D scientists employed by a firm per total number of employees is a correlate of a company's requirement for employee education and training. The rationale for this hypothesis is that as scientists develop new processes and devices, manufacturing procedures change to accommodate the new techniques, causing a demand for additional training for employees.

The 1970s and the early 1980s witnessed an explosion of commitment and interest in training the workforce. Training staffs increased and programs expanded. In 1966, Graniteville Company, a textile manufacturer in Georgia and North Carolina, for example, had one person to train 5,700 employees; in 1980, the company had 76 trainers for 6,800 employees. Consolidated Edison of New York spent $400,000 for training 26,000 workers in 1970 and $5.5 million on only 24,000 employees in 1980 (Craig and Evers 1981, pp. 30–31).

Trends lately have included more emphasis on interpersonal skills, basic and remedial training, and generic skills like communication and computer use. Federal regulations and laws dealing with affirmative action, occupational safety and health procedures, and environmental codes have required additional employer and employee training (Craig and Evers 1981, pp. 36–37). Further, corporate programs are venturing into new ways of educating: teleconferencing, self-directed learning, and computer-assisted instruction.

In recent years, employee educational programs have gone beyond a narrow, technical focus to more general training. Credit courses are offered, tuition-remission plans are available at many companies, and the emphasis on company training programs has in many instances superseded that placed on courses and programs offered by traditional institutions. Some corporations and employees value work done at the "corporate school" more highly than credits earned at colleges and universities.

Corporate-sponsored employee education and training has been developed and expanded for three primary reasons. First, businesses must maintain a certain number of employees, given retirement, internal growth, and turnover. Second, the demand for special knowledge and skills is changing quickly as technology and the environment change. Third, training and education is needed to keep workers and management competent in their present jobs (Lusterman 1977, p. 5). Business and industry view education and training as a way to stay competitive, as world markets have demanded that companies provide goods and services better, faster, and cheaper. Corporations are not in the business of education to take over education's traditional role; rather, educating employees is a business investment. Thomas J. Watson, Jr., former chairman of IBM, underscored this view when he said, "The only reason we are in the education business is to help sell products" (Foy 1975, p. 86).

Corporate education and training programs have responded often to specific needs of companies and industries because it was not provided anywhere else. Training in a new industrial or technical skill is often first given by the firm and then, as demand for the training increases, some

of the training shifts to schools. Industry usually recognizes the value of the training before it is integrated into a formal curriculum (Becker 1975, p. 37).

> *We started developing these courses on the inside because we saw the need was not being met on the outside. The stakes are so high that we have been reluctant to turn over the job to someone else* (Frank Blount, cited in Maeroff 1981).

Corporate executives believe that trained workers tend to be happier and more productive (Leepson 1981, p. 1). In addition, rapid technological changes have forced business and industry to train their employees so that the firm can be more competitive. The Xerox Corporation, for example, offers employee training so that employees will understand the business better and will consequently be more productive and more helpful, and answer the needs of customers. The corporation's management decided it must train employees to do what it wants them to do (James C. Donohue, cited in Leepson 1981).

Government's Role in Employee Training

The federal government has a dual role in employee education—as a sponsor and as an employer. Government's role as sponsor of employment and training programs has shaped the current situation.

The first major legislation affecting worker training was the Morrill Land Grant Act of 1862, which provided that each state be given land to create an endowment for the support of an institution of higher education that would offer courses of study in the mechanical and agricultural arts in addition to classical education and military science programs (Craig and Evers 1981, p. 34). "The Morrill Act established that a college education could encompass both practical training and a general arts education. The coexistence of the liberal and the technical in one institution rapidly became a unique feature of American higher education" (Jacobs and Phillips 1979, p. 8).

In the twentieth century, Congress enacted several pieces of major legislation to strengthen the country's workforce:

- In 1917, the **Smith-Hughes Act** created the vocational education program, ensuring that a proportion of youth would have the opportunity to learn a job skill (Barton 1982, p. 77). Later amendments made the act more comprehensive.
- In 1920, the **Vocational Rehabilitation Act,** created under the Smith-Hughes Act, was enacted to qualify the mentally and physically handicapped for productive employment. In 1965, new legislation tripled federal support and broadened the act to include impairment resulting from vocational education and from cultural, social, environmental, and other factors (U.S. Department of Labor 1979, p. 30).
- In 1933, the **Wagner-Peyser Act** established the U.S. Employment Service in cooperation with the states. During the Depression years, the Employment Service mainly screened applicants for welfare and work relief projects, but its role was expanded to include placement services, employment counseling, special services to veterans, and labor market information and analysis (U.S. Department of Labor 1979, p. 30).
- In 1942, the **Vocational Education for National Defense Act** was enacted to remedy shortages of skills during World War II. Adding $80 million to the normal $15 million outlay, the act was the first attempt to "match adult workers to available jobs through skills training" (Barton 1982, p. 78).
- In 1944, the **Servicemen's Readjustment Act** (the G.I. Bill) provided school and college allowances for veterans. The act was a "huge investment in facilitating occupational change," allocating $13 billion by 1956 (Barton 1982, p. 78).
- In 1957, the **Government Employee Training Act** charged the Civil Service Commission with promoting and coordinating training and development programs for federal employees (Ginzberg and Hepburn 1972, p. 32).
- In 1958, the **National Defense Education Act** provided monies to increase the number of scientists, mathematicians, and engineers in response to the launching of *Sputnik* by the Soviets (U.S. Department of Labor 1979, p. 30).

- In 1961, the **Area Redevelopment Act** provided economic development opportunities for depressed areas. It included a relatively small manpower service component that was administered by the Departments of Labor and Health, Education, and Welfare through state and federal agencies (U.S. Department of Labor 1979, p. 31).
- In 1962, the **Manpower Development and Training Act** provided training for people who were unemployed as the result of technological or structural changes in industry. Programs funded under this act were the Neighborhood Youth Corps, Operation Mainstream, and New Careers. It was a forerunner of the Comprehensive Employment and Training Act (U.S. Department of Labor 1979, p. 31).
- In 1973, the **Comprehensive Employment and Training Act** (CETA) funded classroom and on-the-job training, remedial education, work experience, subsidized public employment, and support services, mostly through public vocational education programs for the disadvantaged (Chamber of Commerce 1983).
- In 1982, the **Job Training Partnership Act** (JTPA) replaced the CETA program. While it continues to fund the same range of training activities as CETA, it has involved the private sector more directly in the planning and operation of the programs (Chamber of Commerce 1983, p. 7).

The decade of the 1960s was one of experimentation to determine ways to solve the nation's and various target groups' employment problems. Fragmentation was excessive within and among many of the programs, eventually requiring legislative and administrative reforms. Four very important approaches improved the coordination of federal, state, and local employment efforts: the Committee on Manpower (1964–66), the National Manpower Advisory Committee (1964–66), the Cooperative Area Manpower Planning System (1967), and the Concentrated Employment Program (1967). The effectiveness of the legislation and of these programs was studied and debated extensively, and CETA was designed to finally alleviate the

fragmentation in manpower programs so evident during the 1960s (U.S. Department of Labor 1979, p. 31).

The Comprehensive Employment and Training Act, enacted in 1973, and its replacement, the Job Training Partnership Act of 1982, are the most significant pieces of training legislation ever enacted by Congress. The CETA program consolidated federal efforts at employment training and shifted many of the decisions on types of training to the local level. It had limited success, however, for the billions of dollars spent. Although reasons for its "failure" are numerous and debatable, a fair assessment is that a myriad of structural, managerial, and administrative problems were evident.

JTPA uses local, state, and federal resources to assist the economically and socially disadvantaged to become productive members of the workforce (Brown, Brown, and Collins 1984, p. 19.18). The act is based on a very important partnership between the public sector and the private sector. While JTPA, like CETA, has a local program delivery system, it attempts "to equalize private and public sector authority over all aspects of local policy-making, planning, administration, and program operation" (Chamber of Commerce 1983, p. 7). This approach has been very positively received in the early years of the legislation.

Under JTPA, each state has a State Job Training Coordinating Council (SJTCC) that advises the governor on the overall implementation of the act. Further, Private Industry Councils (PICs) have been established in communities to develop local job training plans. In each of these groups, business leadership plays a significant role. At least one-third of each SJTCC (51 percent of each PIC) is comprised of business and industry representatives. JTPA also includes a separate summer program for economically disadvantaged youth and direct assistance to disadvantaged adults and displaced workers (Chamber of Commerce 1983, pp. 9–10).

The training provided through the act can be done by businesses, public schools, nonprofit organizations, or any combination. No entity is excluded, provided it can demonstrate effectiveness in delivering the training needed. JTPA is flexible about trainees and the means but carefully drawn to ensure the effectiveness of the program (Chamber of Commerce 1983, p. 17).

Based on the federal government's historical involvement in training, the National Commission for Employment Policy identified three major goals of federal interest:

1. To promote economic growth by giving all those able to work the opportunity and skills.
2. To facilitate adjustment to labor market shocks resulting from changes in foreign or domestic policy. Defense and foreign policy decisions, increases in defense spending, closing of a military installation, or trade decisions may severely affect the economy of a locale or state. Federal employment programs are aimed at lessening the negative impact.
3. To secure equal opportunity by promoting activities that are not available through other institutions. Federal assistance is provided to individuals who do not have the skills to obtain and retain a regular job (Johnston 1981).

Five major categories of federal training assistance have accomplished these goals: on-the-job training, institutional training, work experience, vocational rehabilitation, and public service employment (Fraser 1980, p. 45).

The federal government's role in training and education as an employer results in significant expenditures of time and money. In FY 1981, almost 500,000 civilian employees were trained at a cost of approximately $371 million. These activities, covered under the Government Employees Training Act, Chapter 41, Title 5 of the United States Code (1957), entailed 30 million worker-hours. Certainly no small investment, government employee programs (like those in the private sector) run the gamut, with specialty/technical training heading the list at 13 million worker-hours and adult basic education at the other end of the scale with 168,000 worker-hours in 1981. Categories in between included legal/medical/scientific/engineering (4.4 million hours), administration/analysis (3.8 million hours), supervisory (2.4 million hours), trades/crafts (1.5 million hours), executive/management (1.4 million hours), clerical (1.4 million hours), and orientation (637,000 hours). Short-term training (120 days or less) included agency-specific courses conducted by agency personnel and nongovernmental courses. These nongovernmental courses can be designed

by an outside person or firm for the agency or department or may be a standard, catalogued course offered to the general public. Three times more courses are offered in-house by agency or department personnel than by outside contractors (U.S. Office of Personnel Management 1981).

In addition to civilian employees, the federal government trained 1,250,000 military trainees in 1980 at a cost of $8 billion, including "basic recruit training as well as specialized skill training, flight training, officer preparation, medical training, professional development, and reserve training" (U.S. Department of Defense 1981, pp. 5, C-2). And all branches of the service work with civilian high schools and postsecondary institutions to assist personnel in receiving credentials (Fraser 1980, p. 42).

Even with these programs, however, the federal government is still a junior partner in education and training to other organizations. Despite the funds expended for CETA and JTPA, the federal government is still not the biggest funder of employee programs. Corporations and businesses are playing larger roles (Johnston 1981, p. 82).

Labor's Interest in Employee Education

Labor unions have played an active role in the education of their members. Education departments were created in the International Ladies Garment Workers Union as early as 1917 and in the Amalgamated Clothing Workers Association in 1919. The Workers' Education Bureau of America was founded in New York City in 1921 (Dwyer 1977, p. 183).

The emphasis in those early days of labor education was on general knowledge, not job skills (Barton 1982, p. 115). The Workers' Bookshelf of the Workers' Education Bureau stated in 1925 that titles would be selected because they "enriched life, illumined the human experience, and deepened human understanding" (National University 1925, p. 45).

Union-sponsored worker education changed dramatically during the 1930s. Union leadership felt that, more and more, members needed to learn to organize, lead, and administer effective trade unions. The unions' educational programs reflected this new trend (Rogin and Rachlin 1968, p. 11).

Another major goal for labor unions in the twentieth century was interest in public education (Barlow 1976). Labor unions were strong supporters of the Smith-Hughes Act of 1917 (vocational education), later amendments to the act, and a whole array of ensuing public education legislation (Davis 1977).

Since the late 1940s, labor unions have turned once again to more broadly based issues. Training centers have been established and educational programs expanded. The United Auto Workers' Family Educational Center at Black Lake, Michigan, offers educational opportunities for the entire family (*Solidarity* 1979). The AFL-CIO–sponsored George Meany Labor Studies Center in Silver Spring, Maryland, offers a range of courses from art appreciation to labor law, for which college credits may be earned (University and College 1978, p. 9).

Almost 20 million American workers are covered by union bargaining agreements that contain components for education and training, but only about 600,000 workers (3 percent of total union membership) participate in training and education programs each year. Participation rates for blue-collar workers in education and training are significantly lower than for other groups (Fraser 1980, pp. 52–56). Nevertheless, unions, like corporations and government, have an important tradition in employee education. They have recognized the very critical contribution that a skilled workforce makes to the nation and the importance of ensuring that members' skills reflect the changes in the economy.

Although the development of programs for union members has been linked to traditional education since the 1920s, activity increased between 1956 and 1967, when a number of noncredit, liberal arts programs were developed for unions. Rutgers University, Pennsylvania State University, West Virginia University, Cornell University, and Indiana University were among the institutions that developed such programs (Barton 1982, p. 123). The first degree-granting program developed during the mid-1960s was the University of Massachusetts's master's degree in labor studies in 1965. Labor studies programs are now offered by 47 colleges (Levine 1966).

Collaboration has become innovative in recent years. District Council 37 of the American Federation of State,

County, and Municipal Employees established a branch campus of the College of New Rochelle (New York) that emphasizes the liberal arts. Other union-sponsored arrangements are the one between District 25 of the Distributive Workers Union and Hofstra University (New York), the Labor College (New York), sponsored by the Central Labor Council (Gray 1977, pp. 16–17), and the Pacific Northwest Labor College (Portland, Oregon), which was begun in 1977 by the AFL–CIO, unaffiliated labor organizations, and employee associations and provides continuing education programs for workers (*AFL–CIO News*, 3 February 1979).

Two other innovative joint efforts are the Wayne State University (Michigan) Weekend College and the Harry Lundenberg School of Seamanship (Piney Point, Maryland). The Wayne State Weekend College enrolls about 3,000 workers in for-credit, liberal arts programs. It also provides instruction through television and discussion groups in union halls (Gray 1977, p. 16). The Lundenberg School, as a trainer of inland boatmen and seafarers, gets all its revenues from collective bargaining. Approximately 30 deep-sea companies and 100 towing companies contribute to the school's budget (Brown 1979, p. 2).

Joint labor-management concerns for the education of workers have taken some other directions. The United Auto Workers and Ford Motor Company have established a jointly administered Employee Career Development Plan to help workers maintain their technological skills. Workers need not improve just skills related to the automobile industry; other courses are permitted should the industry change. Funds are also available for laid-off workers. General Motors and the United Auto Workers have a similar agreement (Confer 1984, p. 20.19).

A trend of dual enrollments is developing between unions and community colleges. The International Union of Operating Engineers, for example, has been a leader in developing a system to have apprentices meet requirements for an associate degree while completing the regular apprenticeship program (Barton 1982, p. 124).

Labor unions have, like government and industry, played important roles in the education of employees, but the possibilities for additional creative partnerships are limitless.

The fact that the UAW has undertaken cooperative programs with only about 30 community colleges indicates not that the UAW has been shy, but rather that most of the community colleges have held back entering ambitious ventures with the UAW and other unions (Woodcock 1975, p. 20).

Employee Training and Education to Develop Human Capital

Investing in the training and education of employees with an expected rate of return is a concept that is still being argued in economic and philosophical circles. The development of these programs in corporations, government, and labor unions has been made for this very reason, however. The huge investments made for employee education and training are done with the belief that people are the most important resource available and that their knowledge must be kept updated. The contributions of the labor force to the economy continue to be documented.

A comparison of the years from 1948 to 1978 indicates that human contributions far exceeded capital in their contribution to the growth of national product. During that period, on-the-job know-how, or what is termed "working smarter," contributed twice as much to economic growth as did capital (Carnevale 1983b, p. 41). Human resources consistently accounted for more than 75 percent of the growth in national income and productivity, while capital accounted for 15 to 20 percent and land in itself contributed a negligible amount. Projections through 1990 confirm this trend (Carnevale 1983a, p. 12).

Certain human qualities, the so-called "factor x," increase output even with ranging levels of input, and output differs significantly within individual firms where employees use the same equipment and earn the same pay (Liebenstein 1976). These kinds of findings have led economists to look beyond the old definitions of "input" and "capital" to less tangible elements.

The historical definitions of capital and capital formation focused on the tangible, definable elements of production like machinery, buildings, supplies, and money. The Department of Economic Affairs of the United Nations defined capital as "all goods produced for use in future productive processes" (United Nations 1953, p. 7). These

goods may include "machinery, equipment, plants and buildings, other construction and works, and producers' stocks of raw materials, and semi-finished and finished goods" (United Nations 1953, p. 7).

The definition of capital has been broadened to include a number of intangibles that are not easily defined, however. Future production may be facilitated by things other than additions to traditional capital (Kiker 1966, p. 1). Such things as education, on-the-job training, human migration, acquired knowledge, health, and living conditions can affect labor productivity. These qualitative changes that affect the labor force represent the application of capital to labor; the result is a hybrid often referred to as "human capital." Some have defined the term even more broadly:

> *Human capital economics is a system of inputs, processes, outputs, and adjustments which individuals, firms, government agencies, institutions, and societies make toward the increase of potential and performance which the individual human or humans as groups may contribute to society, the economy, specific employees, or themselves* (Odiorne 1984, p. 5).

The concept of "human capital" in its expanded version is the primary impetus for training by industry. It consists of the acquired energy, motivations, skills, and knowledge possessed by individuals, which can be captured or confined over a specific time period and are used in the production of goods and services. The development of human capital may include training and education acquired through formal education in colleges, preparatory schools, and graduate or professional schools. It could also, however, include competencies learned less formally in the home, on the job, or around the community. A number of other factors—good health, communication, and transportation, for example—may contribute to human capital investment (Bowen 1977, pp. 362–63).

Employers have learned that the investment in specific kinds of skills is as important as investment in plants. Workers, for example, must know how to operate computers and other sophisticated equipment if they are to be a cost-effective capital investment (Springborn 1977, p. 20). Human capital (defined as the skill, dexterity, and knowl-

edge of the population) is a major factor in the growth of the economy and the overall well-being of the population (Ginzberg and Vojta 1981).

Several important studies have attempted to measure the impact of education and training on national growth. Denison's early work (1962) and his later study of economic growth from 1929 to 1969 (1974) show evidence of impact. His technique was termed the "residue effect." That is, he identified as many factors for growth as possible and subtracted them out; the "residue" was the impact of education. Kendrick (1979) used Denison's data to measure the impact more directly. He concluded that productivity would be increased with more training and education (Barton 1982, p. 106). Finally, Carnevale (1983b) contended that productivity is increased by "the intensity with which we utilize resources (working harder) or by increasing the efficiency with which we mix and use available resources (working smarter)" (pp. 40–41). Human decisions, work attitudes, health care, and education and training affect the "working smarter" potential of the workforce.

Despite these studies of increased productivity, economists have developed concepts that do not take into account such nonquantifiable outcomes as happiness, love, and humanitarian impulses (Douglass 1977, p. 362). They are left out of any assessment of the worth of human capital unless they significantly influence the production process. The concept of human capital concentrates on monetary outcomes, ignoring other important results that cannot be directly related to dollars.

While the debate on the theory of human capital still has a long life, it has produced two insightful conclusions:

1. The economy requires a highly skilled workforce; and
2. The quality and the quantity of the education provided need to be assessed (Lynton 1984, pp. 21–22).

More education is not necessarily better, unless it is directed toward needs in the workforce and the workplace. While the country needs skilled workers, it also needs to ensure that those skills are being taught. Skills needed must be examined more thoroughly to support our changing economy. The development of human capital should be a shared concern of educators and employers, and tradi-

tional education has an important role to play (Lynton 1984).

The development of employee education programs sponsored by corporations, government, and labor unions has an important history. These employers saw the need to develop the skills of the workforce to increase productivity. The development of the nation's human resources has been one of its most important tasks, and that development has for the most part occurred because of changing technologies or societal needs. Despite its importance, traditional educational institutions have not played a significant role.

TRADITIONAL EDUCATION'S ROLE IN EDUCATING THE WORKFORCE

The training and retraining of employees is an important component of the educational enterprise today. While traditional institutions are now opening their doors to working students by offering evening courses, by giving credit for prior learning, and by developing external degree programs, the educational community has historically made no real efforts to work directly with business and industry to meet employees' training needs. The inevitable question—why?—has numerous answers, depending on individual institutions, their leadership, and their location, but some historical and philosophical reasons are apparent as well. Traditional education's march to a different drummer has something to do with its perception of itself and society's demands placed on it.

Training and Education: A Difference?

Educators continue to debate the appropriateness of corporate-sponsored credit courses, especially degree programs. The argument focuses on the question of whether training that is directly job-related should be considered "education." The lack of consensus within the education community has delayed and often prevented education's and industry's working together.

The distinction between education and training (or liberal versus vocational studies) continues to plague academicians, although throughout this century education has become more open on the definitions of the two. The presence of professional schools expanded the historical concept of higher education. Schools of business, engineering, medicine, and so on have been not only accepted but embraced by traditional higher education. In the early twentieth century, fewer than 10 percent of the graduates of higher education were in agriculture, business, engineering, and forestry (Cheit 1975, p. 4). These disciplines, once considered practical training and inappropriate for academic study, are now a part of most university curricula.

The distinction between education and training (or liberal versus vocational studies) continues to plague academicians.

The distinction between "education" and "corporate training" is not easily drawn:

> *At one end of the scale, which we may regard as more typical of training, lies measurability, narrowness of subject matter, relevance to a particular time and place, well-defined range of use, and efficiency of information*

transfer. At the other end of the scale, more characteristic of what we mean by education, lies the exposure to contrasting assumptions and points of view, the involvement of personal intellectual initiative, less constrained range of use even to uncertainty about its specific utility, and the general impossibility of measuring on a quantitative scale the degree and quality of acquisition of insight (Branscomb and Gilmore 1975, pp. 226–27).

While education is more cumulative in nature than short units of training, Branscomb and Gilmore (1975, p. 227) argue against making such a simplistic distinction. Students can be "trained" to apply knowledge of science while benefiting from a cumulative education. Conversely, specialized training in one company product can complement training in another.

Training is related to the employee's present job, education to a future job (Nadler 1984, p. 1.18). Training is concerned with the performance of workers in organizational systems. More specifically, training concentrates on the development and maintenance of competencies to perform roles and tasks in a certain work situation. Education, however, is more concerned with the general growth and development of the individual. Education is concerned primarily with the acquisition of knowledge about something, training with the development of skills to do something (Lynton and Pareek 1967, pp. 5–7).

"Education" . . . means learning from the inside out: internalizing a fundamental understanding of the basic principles in a field of knowledge. "Training" . . . indicates learning from the outside in: gaining a practical ability to perform a specific task. These notions do not divide neatly by subject area or purpose. One can be trained or educated as an engineer, a chemist, an economist. One need not be educated in a subject area to be trained in it. The pilot need not understand the airplane to fly it. At the same time, a thorough understanding of the airplane is necessary in order to build a better one. Finally, all subjects are suitable for both education and training. Robert Pirsig has demonstrated that there is art even in motorcycle maintenance (Carnevale 1983a, p. 16).

The terms, however, are not so important, and they are used interchangeably in this monograph. By the definitions given here, educational institutions and corporations offer both training and education. Just as education can be specific and general, so can training. The terms do not dictate the kind of organization that should provide each; rather, they indicate the broad range of learning needs for employees and adults. The American workforce needs both training and education. No longer do the two fall neatly on the side of corporate-sponsored programs or traditional education. Rather, they provide the challenge for conversation between the two worlds to determine which can best and most efficiently offer what is needed to maintain and upgrade workers' skills.

Philosophies of Educating for Work

The debate about training versus education illustrates a larger question: What types of learning experiences should higher education provide? Does it have as its mission to provide only the pure, the conceptual, and the theoretical and leave the practical to other entities?

These questions of what should be taught and what should be learned have been issues for educators for centuries. The tension between what is "liberal" and what is "useful" (Cheit 1975) is one of the oldest and most persistent problems in education. Aristotle framed the question 2,300 years ago:

> *Should the useful in life, or should virtue, or should the higher education be the aim of our training? All three opinions have been entertained . . . [and] no one knows on what principles we should proceed* (Jowett 1905, p. 301).

Indeed, "the most notable trend among college students of the 1970s is a new focus on practicality" (*Chronicle of Higher Education* 4 February 1974, p. 1). This issue of practical versus theoretical has once again arisen for higher education with the dramatic increase in industry-sponsored education.

The distinction between liberal and practical learning raises opposing views from the academy. Some believe that including any vocational training is contrary to the

mission of colleges (Adler 1951, p. 43). Adler, in fact, distinguishes liberal studies and vocational training by contending that the former deserve no reward beyond their own self-reward, while the latter should be compensated like work with wages. The proper place for vocational training is on the job, not in colleges and universities (Adler 1951). Others have gone further: The remoteness of academia from the practical world is inherent in its survival (Minogue 1973, p. 100). The two kinds of education—one philosophical that deals with general ideas, the other mechanical that works toward the particular—mean that the more specialized the knowledge becomes, the more it ceases to be knowledge (Newman 1959, p. 138). Because vocations and professions seem to focus on the particular, they can best be learned in the context of their practice in the workplace.

The desire for external funds is the root of academic evil (Hutchins 1936, p. 32). Higher education will sponsor or initiate any program that external organizations propose, provided that they are willing to pay for it. But investment by these parties is partisan and compromises the integrity of higher education. Universities must therefore break this vicious cycle (Hutchins 1936). Some believe that Hutchins's warning should be heeded and that working with industry to educate employees is a violation of academic principle because the goals and objectives of providing education are different in industry and in educational institutions. If one defines the purposes of education more broadly than in terms of vocation or curriculum—

> *The aim of education is not* only *to prepare the young for productive careers, but to enable them to live lives of dignity and purpose; not* only *to generate new knowledge, but to channel that knowledge to humane ends; not* merely *to increase participation at the polls, but to help shape a citizenry that can weigh decisions wisely and more effectively promote the public good* (Boyer and Hechinger 1981, p. 60)—

then knowledge should be applicable in a number of different settings and circumstances for the benefit of the individual. Industry, while concerned to some extent with

individual growth, views learning as an investment that is necessary to prepare workers for specific tasks at hand or to enhance the employee's career development within a specific company. Although exceptions exist, generally businesses train for the benefit of the organization, not the individual. The reverse is true in education.

Education in industry is designed to train employees in specific areas of the company's interest and in general areas. Many academicians believe that specific technical training is most appropriately taught at the workplace and the more academic subjects left to colleges and universities. The academic world, however, cannot be isolated from life and society:

> *The university is now firmly established as the focal point not only of American education but American life. It is, next to government itself, the chief servant of society, the chief instrument of social change . . . . It is the source, the inspiration, the powerhouse, and the clearinghouse of new ideas* (Commager 1965, p. 79).

But perhaps professional studies are by their nature both theoretical or practical (Brubacher 1978, p. 23). In the case of physicians or lawyers, each client or patient presents a unique set of circumstances. It is therefore impossible to learn all the possible solutions to problems that could be presented. Practical applications must be built into academic programs. Under such circumstances, it would be madness to eliminate the opportunity for imaginative, creative learning by having universities withdraw from close contact with vocational and professional practices (Whitehead 1936, p. 268).

It may not be necessary, however, to choose between the purely theoretical or purely practical approaches to higher education. They both have appropriate places within the academy (Bell 1970, p. 234). In the late nineteenth century, Dewey raised concerns about the pure intellectualism promoted by education. He favored theory and practice in tandem in schools. While his concerns are almost a century old, they warned of the barrier that has prevented closer collaboration between traditional education and business and industry:

When occupations in the school are conceived in this broad and generous way, I can only stand lost in wonder at the objections so often heard, that such occupations are out of place in the school because they are materialistic, utilitarian, or even menial in their tendency. It sometimes seems to me that those that make these objections live in quite another world. The world in which most of us live is a world in which everyone has a calling and occupation, something to do. Some are managers and others are subordinates. But the great thing for one as for the other is that each shall have had the education which enables him to see within his daily work all there is in it of large and human significance (Dworkin 1959, p. 45).

Dewey suggested that the academy has a dual role: general education and preparation for work. It is not an either/or situation; rather, a blend of the liberal and the practical is needed.

Colleges and universities are the principal societal institutions providing higher education. Though government, industry, and the church overlap in the functions of teaching and learning, education is for them subordinate and tangential to other purposes and missions. For colleges and universities, the function of education is paramount—their raison d'être (Hoffman 1970, p. 211; Hutchins 1933, pp. 46, 182). This function, however, has been interpreted more broadly than teaching traditional-aged students. It includes the tripartite functions of teaching, research, and service, and numerous subcategories within each. No longer are the functions and purposes of educational institutions cloistered; rather, they have reached beyond the campus gates to communities, government, and industry.

The question of purpose or assignment of educational responsibilities is inevitable. To concede without argument that the primary purpose of educational institutions is teaching and learning is not to say that they then are the only ones that should be in the business. An analogy from everyday life illustrates this point. It is quite common for department stores to have bakeries, but at one time only store-front bakeries had fresh baked goods. Now they, like tire departments and photo studios, have become part of a larger enterprise. This occurrence is not a negative reflec-

tion on the remaining store-front bakeries but rather a clear statement that the demand is larger than store-front bakeries can meet.

While education is not the primary purpose of business and industry, it has become, like the department store bakery, part of a larger enterprise, because the demands for employee education and training go beyond what traditional institutions can meet. Despite the philosophical arguments on the appropriate roles of education, however, the vast majority still expect education to be all things to all people. Many view the growth of corporate-sponsored education as a failure of the traditional system, not a complement.

Education's Simultaneous Role

The development of corporate, government, and labor union training programs, history also shows, has paralleled important developments in the traditional educational system. Reviewing this development may help to explain why traditional education has not responded to the burgeoning demand for education by the workforce.

While employee education programs were developing inside corporations, the traditional educational system was continuing to perform its role with the 5- through 22-year-olds. "With the arrival of an industrial economy, the schools became the primary institution responsible for universal general education, for socialization of young citizens, and for vocational, technical, and professional training. In the process, they also came to act as job brokers, shifting and sorting individuals for future positions in the workforce and society" (Jacobs and Phillips 1979, p. 9). It was clear that traditional education saw its role as *preparation* of young people for life and work, but no more than that.

During the period (1950 to 1970) that business, industry, and the federal government were fully recognizing the long-term benefits of employee education and training and providing dollars to that end, two very important demographic phenomena were occurring in American education. First, following World War II, college and university classrooms were bulging with newly discharged GIs taking advantage of educational benefits. Second, the baby boomers of the 1940s entered the system in the 1960s.

Enrollments in American higher education increased 3½ times between 1950 and 1970 (Carnevale 1983a, p. 7). By 1956, 7.5 million veterans had enrolled in some type of educational program (Barton 1982, p. 78), and all available space, faculty, and resources were garnered to meet this new and growing demand. In the case of the Korean conflict and the Vietnam war, college deferments gave many young draftees a renewed interest in pursuing higher education. Even after the Vietnam war, however, the trough of prospective students was still not empty for higher education. The 1960s brought the baby boomers to college campuses and, equally important, a simultaneous shift in society's attitude toward attending college. Thus, the interest in higher education was increasing at the same time the pool of available 18- to 22-year-olds in the population was increasing. The baby boom phenomenon showed that enrollments in higher education were not so much determined by the size of the available cohort but by the proportion of that pool that chose to enroll (Carnevale 1983a, p. 7). In 1960, 38 percent of all 18- and 19-year-olds were enrolled in higher education; in 1969, that figure had increased to 50 percent.

Therefore, while corporate education was growing and maturing, so was traditional education. The charge that traditional education shirked its responsibility to the workforce is not entirely accurate. While educational leaders should have recognized the needs of industry, traditional education was meeting a vital societal need following World War II. The public response to *Sputnik* in the late 1950s increased the pressure on education to continue to teach and do research in its traditional role. In hindsight, the educational community could be termed as narrow and nearsighted. A more fair assessment, however, is that during the 1950s, 1960s, and 1970s, institutions of higher education were responding to increasing demands for the product that they had and knew the most about. The time, resources, or inclination did not seem to be available to address corporate education, because it did not fall neatly into higher education's defined bailiwick. No real economic pressures would have caused the educational community to invest its energies in the corporate world. Federal dollars were being doled out to educate traditional-age students and to do research. The academy responded. The

bets were placed on traditional-age students; the adult education movement was not widely acknowledged until the 1970s. Traditional institutions, rightly or wrongly, operated in a different mode (Carnegie Foundation 1980, pp. 87–88).

While a number of "work-learn" programs have existed in recent years involving the academy and the corporation, it is true that postsecondary education in general has expended little effort to work with industry in educating their employees *on their terms*. Societal changes, technological advances, and innovative corporate leadership have played a large role in the growth of corporate educational and training programs. It has been only recently that educational institutions have seen the potential and the opportunity in working with corporate education and training programs.

The 1980s present a different scenario for higher education. The demographics of traditional-age students are changing, public support is waning, and critics are attacking the academy for its technical obsolescence and lack of responsiveness. This situation has fueled the argument that higher education is not supporting America's economic and technological development. Much in the same way that Americans cried for improved education after *Sputnik*, they are now calling for higher education to lead the training of the workforce for the information age.

Society's demands come on the heels of two decades of higher education's emphasizing the development of individuals. During the 1960s and 1970s, attention was focused on enrollment strategies (Carnevale 1983a, p. 7). The emphasis was on individual students and their development, not on the national economy. Even federal aid programs were designed to assist individuals, not institutions. In the 1980s, however, the primary justification for the commitment of national resources to any institution may be "the prospective impact on the nation's overall economy" (p. 9).

Corporate-sponsored education has evolved as technology and competition have demanded. Federal legislation and catastrophes of war have also had a significant influence. While traditional education has not been as responsive as it could have been, it is clear that many external factors, coupled with traditional education's strictly inter-

preted philosophies and mission, have not encouraged collaborative efforts. Corporations have been forced to develop their own programs without the assistance or interest of traditional education.

OVERVIEW OF EMPLOYEE EDUCATIONAL PROGRAMS

The range of activities and courses offered by corporations, government, and not-for-profit organizations for their employees is quite broad. Programs in the third sector, like those in traditional educational institutions, range from small to large, selective to open admissions, and poor quality to high quality. While case studies on corporate education focus on the more sophisticated, well-developed programs, few corporate programs equal the caliber of those sponsored by IBM, Xerox, NCR, the Bell System, and General Electric. More common are short-term programs that respond to sudden shifts in technology or changing markets rather than address long-term training and education.

"Corporate education continues to be, by and large, a tactical, not strategic, device to satisfy immediate needs" (Lynton 1983, p. 19). The short-term training and education required for a particular project, product, or technology may often take precedent over long-term educational objectives, and the reasons most often given for this approach are money and time. A company must use its resources, financial capital, and human capital in the most cost-effective ways to generate profits. Often the financial leverage is not available to allow a more comprehensive approach to education and training.

"Corporate education continues to be . . . a tactical, not strategic, device to satisfy immediate needs."

Employee education and training can take place at the work site or outside, may be for credit or noncredit, and is typically aimed at updating technological skills, improving knowledge of the firm and its business, or increasing the understanding of governmental regulations. This type of training involves company training personnel as well as outside consultants. Of 610 companies with 500 or more employees in one survey, 70 percent offer in-house educational programs during work hours (Lusterman 1977, p. 45). This kind of training uses outside vendors, colleges and universities, private consultants, and in-house training staffs. In another survey, 65 percent or more of the training and education offered by the 727 companies sampled was in four categories: management skills/development, communication, supervisory skills, and updating technical skills/knowledge. Less than 19 percent of the training was for remedial skills. Management skills were the predominant type of training in all types and all sizes of industries (*Training* 1983).

While the sample pools for these two surveys were small and perhaps do not accurately reflect reality, all sources of information indicate that a large portion of corporate education and training is company-specific, management development, technical, or "industry-competitive." The last three types refer to knowledge that could easily be transferred to other companies. A smaller portion of training is for credit equivalents. A rather miniscule amount of corporate-sponsored education results in a degree.

Four types of employee education and training programs can be identified: (1) job-related training offered in house; (2) trade seminars and professional meetings; (3) tuition aid programs; and (4) college degree and college credit programs (Leepson 1981, p. 2).

Job-Related Training

The many types of job-related education usually fall into two categories: generally applicable training and more company-specific training. While some training falls neatly into one or the other category, a large number of employee programs are a combination of both.

"General" job training is defined as training that is applicable in firms or businesses other than the one providing it (Becker 1975, p. 20). It usually refers to generic skills like management or time management or to more technical skills like salesmanship or piloting. Such skills as those learned by interns in hospitals and pilots in the armed forces are examples of generally transferable skills. General training increases the future marginal productivity of the worker in a specific firm *and* in other firms. In a competitive labor market, wages paid by a firm are determined by marginal productivity in other firms. Firms that provide general training recapture only some of their training costs if their marginal product rises by more than their wages (Becker 1975). The argument that workers bear the cost of general training (Becker 1975, p. 21) is generally not true in companies that want long-term relationships with employees. IBM, for example, makes a large investment in general kinds of training for employees with the notion that the employee will be productive for the company for a number of years. And during the last 35 years, IBM employees have lost no work time because of major product shifts, the recession, or layoffs (Robison 1978).

If people are not worried about being laid off, they will be flexible in making the changes we ask of them . . . . Our business has always recognized the effect that job security can have on the morale of the workforce (Frank Cary, cited in Robinson 1978, p. 112).

This policy of job security is in part predicated on a massive in-house educational system. Employees are retrained when company or industry needs change; they need not fear being laid off.

Some firms in very competitive labor markets, however, will not pay the cost of general training but do pay trained persons the market wage. Their primary reason for this policy is that if they pay general training costs, then many individuals would seek training and labor costs would rise. Firms that do not pay trained persons a competitive wage may have difficulty keeping skilled workers. A worse situation, however, is a firm that does not pay market wages but pays for training costs: This situation describes the U.S. military. The military pays the costs to train personnel but does not pay competitive wages to those that complete training. Thus, the armed services are faced with an influx of under- or untrained personnel and an exodus of highly skilled people to civilian jobs (Becker 1975, pp. 24–25).

A definite correlation exists between training and sustained employment:

Recent research indicates that the firm makes a long-term commitment to a worker only when the firm is willing to supply a job and a further training investment. The commitment of resources beyond hiring appears to be critical to sustained employment (Carnevale 1981, p. 3).

The second category of job-related training, job- or company-specific training, increases productivity in the specific firm. It usually includes entry-level training, orientation programs, and company-specific courses (Becker 1975, p. 26). The costs of orientation programs for new employees and "hiring" costs (recruitment, testing, employment agency fees, and initial errors) are sometimes considered specific training costs. These costs must be considered as only a portion of what it takes to raise the

new worker's productivity level (Clark and Sloan 1958, chap. 4). Many firms, however, do not keep accurate records of direct training costs or such indirect costs as overhead, lost productivity, or rent (Blaug 1972, p. 194).

As with general training, firms must consider the costs of losing employees trained for specific jobs to competitors. The impact of employee turnover often depends on market conditions as well as on the nature of the training investment (Becker 1975, pp. 27–32). Firms in a very competitive labor market face the threat of employee turnover more than monopolistic firms. Turnover becomes important when the firms absorb training costs. Firms counterbalance the losses by providing less training or by requiring a larger return on their investment from the remaining workers. Another way to approach the problem is to offer more competitive wages for the trained employee. The ideal situation is one where employer and employee both bear a portion of the training costs so the loss is minimized for both. In this instance, each party has an interest to protect.

Corporations and government offer general and specific education and training to their employees, but the type, amount, and level of education and training offered depend on a number of factors, including the type of industry, level of employees, and available time and money. Several generic types of training and education can be found in many organizations, however.

Entry-level training is an area of specific training common to most organizations. In some cases referred to as indoctrination periods, these programs can last from one day to several months and require a huge investment by the company. IBM, Xerox, and others conduct these introductory training programs at branch offices as well as at educational training facilities where students are housed, fed, and paid their regular salary while in school. The environment is competitive and demanding for students. This portion of employee training is usually taught by an in-house education staff or line manager, and it is heavily oriented toward necessary job skills and company policies.

In some ways, introductory training may be the most company-specific and the least open for collaboration with any outside group. (Exceptions might be communication skills, writing skills, or other generic areas of learning that

would be applicable in any environment.) A number of companies, however, have turned to higher education to assist in designing introductory training programs and to participate in the training. Higher education has had a successful history in orienting people to new situations, and industry is beginning to tap that expertise and experience.

Although a large portion of the training of new employees is on-the-job and unplanned, that situation will change as line managers become more accountable for training and as corporate training departments are created or expanded (Lusterman 1977, p. 46). Thirty percent of the companies in Lusterman's survey offered training for their employees, with the median expenditure of about 10 percent of the training budget for new employees.

Training in basic skills has increased in recent years. While they are usually part of entry-level training, these skills are certainly applicable elsewhere. Robert Craig of the American Society for Training and Development contends that the lack of proper training in basic skills is a critical problem in all areas of the workforce (Reed 1981). In addition to deficient reading, writing, and arithmetic, employees' attitudes and work habits are poor. An estimated 15 million adults holding jobs today are functional illiterates. Add to that number the 47 million adults who are borderline illiterates, and the issue is critical (*ASTD National Report* 1984c). And the problem is not restricted to one level of workers. According to Craig, "Our people say that liberal arts graduates and MBAs don't know how to write a sentence" (Reed 1981).

In 1976, approximately 30,000 American workers participated in remedial courses at the workplace, and over 30 percent of companies with 10,000 or more employees offered remediation courses (Lusterman 1977, p. 64). A more recent study shows that about 20 percent of the companies surveyed offer remedial courses (*Training* 1983).

Courses in basic skills require significant corporate investments of time and money. The American Telephone and Telegraph Company estimated that in 1979 it spent approximately $6 million yearly on basic skills and that 14,000 employees attended classes on basic writing and basic arithmetic during office hours. The Polaroid Corporation has had a remedial program for more than 10 years. Its "Fundamental Skills Program" employs 15 part-time

teachers for nearly 1,000 students each year. This component of job-specific training makes up a considerable portion of employee training programs (Reed 1981).

To improve the educational skills of students entering the workforce, more than 150 groups in the United States link corporate executives with educators to assess what students should study. These collaborative efforts include businesses' assistance in planning remedial programs and direct company sponsorship of basic skills programs. An example is a reading center at Oakland High School in California sponsored by Kaiser Aluminum and Chemical Company (Reed 1981).

The Reagan administration has made a major drive to recruit volunteers for its "Adopt a School" program. Under this program, corporations "adopt" a local school, provide funds for specific programs, and loan personnel to work directly in the schools. The National School Volunteer Program, Inc., has published a booklet of profiles of successful business/school collaborative efforts (Purcell, Alden, and Nagle 1981), and the U.S. Chamber of Commerce (1984) has a primer on ways that corporations can develop partnerships with educational institutions.

Corporate managers believe that they must offer training in basic skills if they are to have employees who can function on the job (Reed 1981), but deficiencies in basic skills, as the examples show, have become everybody's problem. While business and industry will continue to provide this type of education for their employees, it is one that will ultimately be reckoned with nationally. But corporations understandably fear that this type of training will claim an even larger portion of their resources in the years ahead.

Trade Seminars and Professional Meetings

In addition to colleges and universities and in-house training staffs, a number of other entities play a significant role in training employees. Among them are professional organizations, consulting firms (or "vendors" as they are often termed), and individual consultants.

Professional associations and technical societies are offering increasing amounts of training and education for their constituents. According to a study by the American Society of Mechanical Engineers, these groups are increasingly meeting needs for training in the areas of organiza-

tional change and technological advances (McQuigg 1980, p. 324). The study reports that 86 percent of these groups operate or are in the process of developing continuing education programs; almost half of the organizations cosponsor programs with universities and colleges. As of 1980, more than 3,000 entities offered business and management courses, but only 700 of them were colleges and universities (Maxwell 1980).

Consulting firms and nonprofit organizations provide assistance to company training programs. These educational vendors are a significant part of the training industry. Vendor exhibit space at ASTD's annual meeting, for example, has more than doubled in the past five years to 36,700 square feet (Craig and Evers 1981, p. 32). Educational vendors do everything from making training films to selling video and audio equipment. Vendors produce cassettes, slides, technical books, packaged learning systems, and consulting services in virtually every area of employee education and training.

These groups compete directly with institutions of higher education to provide training services. In some cases, they are individuals; often they are full-fledged companies. And the group is growing. Company trainers, vendors, and equipment suppliers are the primary sources of instructors for on-site employee education and training (Gorlin 1981).

The American Institute of Banking's program is the world's largest industry-sponsored adult education program; in 1980, it educated about 230,000 bankers (Wellisz 1981). Another of the largest vendors is the American Management Association (AMA): Its 3,200 programs enroll over 100,000 participants each year (Maxwell 1980). One of the reasons for the large participation in AMA courses is that the instructors are actually "on the firing line" and can discuss real-life situations in the classroom. Further, the AMA uses 450 of its members to serve on advisory groups and functional councils. "With that kind of talent at its disposal, AMA planners can virtually tailor a program to a company's specific needs" (Bies 1982, p. 84). The AMA sponsors management courses nationwide in a variety of settings, but it also works directly with companies to set up specific courses in-house.

While the AIB and the AMA are well-known suppliers of employee education and training, they are only two of

thousands of groups, individuals, and for-profit firms that offer management and employee training to corporations and nonprofit organizations. Others include the U.S. Chamber of Commerce, the Brookings Institution, the Aspen Institute for Humanistic Studies, and the American Enterprise Institute, which offer policy and governmental seminars for executives (Lynton 1984, p. 119). Resources such as *Brinker's International Directory of University Executive Development Programs* (1981) and the *Training and Development Organizations Directory* (Wasserman 1980) list executive training programs offered by colleges and universities. Mantread, Inc., is a clearinghouse for management training programs and evaluation of training that assists companies to evaluate programs being offered (*Business Week* 1977).

Tuition Aid Programs

Tuition remission or tuition aid programs are common in business and industry. Tuition remission programs reimburse employees for courses taken at an approved college or university, and payment may take the form of complete reimbursement, partial reimbursement, or a percentage based on the grade received in the course. While policies vary among companies, two general philosophies are apparent. First, courses taken must relate to the position the employee holds, and second, the employee may choose any type of course or degree program.

As of 1976, tuition aid programs were available in almost all categories of companies with 1,000 or more employees (Lusterman 1977, p. 32). Companies with at least 500 employees spent approximately $225 million on tuition remission programs in 1974–75. Although a 1970 study showed that employees' median rate of participation in tuition aid programs was less than 4 percent, the study also found that rates of participation are quite diverse. For example, Citibank reimburses employees nearly $1 million annually for tuition (Farnsworth 1981).

The Polaroid Corporation has a very successful tuition aid program. During the 1977–78 school year, 10 percent of the eligible Polaroid workforce participated in the tuition assistance program. The program paid 100 percent of tuition costs, and employees were paid in advance, two probable factors in its success. The tuition plan paid for courses

in basic skills, upper-level courses, credit courses, and trade and craft licensing certification programs (Leepson 1981, p. 5).

Several factors probably contribute to the relatively low rates of participation in tuition aid programs. First, many employees want job-related training for advancement and are unwilling to devote time and energy to general education courses. Second, corporations often do not reward employees for a degree or advanced degree. While the credential is accepted as "nice to have," mobility in many companies has more to do with performance on the job and in company-sponsored courses. Third, colleges and universities have not been easily accessible to employees and have not made great efforts to attract the employee market. Inconvenient class schedules, bureaucratic mazes for admission and registration, and the unwillingness of faculty to see the clientele as having different needs and learning styles have discouraged employees' participation.

Many employees want job-related training for advancement and are unwilling to devote time and energy to general education courses.

This low level of participation has contributed in part to the growth of in-house programs. While corporations provided education and training through tuition aid programs, barriers prevented employees' wide participation, and many firms had to provide their own training courses to get what they needed for the corporation.

College Credit and Degree Programs

College credit and degree programs are another area of employee training that can be both general and specific. As more and more courses are offered in-house, programs are more likely to be tailored to the particular firm. But college credit and degree programs offer the ability to transfer the courses between colleges and universities and the ability to have in-house courses approved by outside reviewers.

Business and industry generally take two approaches to college credit and degree programs: First, businesses offer their own degree program and credit courses; second, corporations cooperate with colleges and universities. The first category, credit courses offered by the firm, has received a great deal of attention in recent years. A TWA executive contends that employees seem to work harder when they know they can earn college credit (McQuigg 1980, p. 325), but many employees believe that company-sponsored courses are better than college courses because

they are more intensive and the material is related to their work. Employees want the status of the credential but the practicality of company-specific approaches.

Corporations offer credit courses in a variety of ways. Some offer courses that are recommended for college credit by the American Council on Education's Program on Noncollegiate Sponsored Instruction (PONSI) or the New York Board of Regents program. Some team with nearby colleges and universities or a national entity like the New York Board of Regents to offer credit courses. And some offer courses of their own.

Until the 1970s, the majority of courses offered by business and industry for their employees were not equated to college credit. As a result, colleges and universities were not recognizing employees' learning. In 1974, the New York Board of Regents began its national program to evaluate noncollegiate-sponsored instruction for academic credit equivalents. The purpose of the program was to make recommendations about credit to guide colleges and universities in awarding academic credit (McGarraghy and Reilly 1981, p. 86). The idea of awarding credit for work-sponsored courses actually began after World War II, however, with the American Council on Education's evaluation of military education programs. The American Council on Education and the New York Board of Regents worked cooperatively on the pilot study in 1974 to transfer the military evaluation system to civilian courses (McGarraghy and Reilly 1981, p. 86). In 1977, the American Council on Education began an independent program.

The Regents program has evaluated almost 1,700 corporate courses for 139 organizations, and of that number, almost 1,500 have been recommended for academic credit. The course descriptions are listed in *A Guide to Educational Programs in Noncollegiate Organizations* (University of the State of New York 1980). Both the Regents program and PONSI evaluate courses for companies throughout the United States. The subject areas range from secretarial science to industrial technology. The important component of both programs is acceptance of the credit recommendations by fully accredited colleges and universities. Like all transfer credits, the individual institution has the right to accept or reject recommendations (McGarraghy and Reilly 1981, pp. 86–87).

PONSI began in 1974 at the recommendation of the Carnegie Commission on Nontraditional Study. The PONSI program staff have worked with over 140 noncollegiate institutions to have their internal courses reviewed for equivalent college credit. The noncollegiate institution must contact the PONSI staff and request an evaluation. Courses are usually evaluated where they are offered—that is, at a corporate education center or the workplace—and they are evaluated by teams of specialists in the subject who have been recommended by accrediting associations, professional societies, and educational institutions. Evaluators can be faculty, administrators, or educators from noncollegiate organizations. According to PONSI guidelines, the team examines every aspect of the course being reviewed, including course objectives and content, teaching methods and materials, procedures for evaluating students, and administration of the institution's educational programs. The team also evaluates administration of the course, including selection of instructors, course design, record keeping, facilities, and uniformity of courses throughout the organization. Collectively, the reviewers recommend whether the course should be offered for college credit, and if so, how many hours and at what level. Each year, the sponsoring noncollegiate organization must update PONSI's records with any changes in the course to ensure the continued validity of the credit recommendations. A site visit every five years updates the credit recommendations (American Council on Education 1983b). The recommendations are listed in *The National Guide to Educational Credit for Training Programs* (American Council on Education 1983a).

In addition to the PONSI program, the American Council on Education administers a Registry of Credit Recommendations for organizations participating in PONSI. Currently over 2,000 courses for 183 corporations, associations, and government agencies are on file. The registry provides a permanent record of courses taken by employees that PONSI has recommended for credit; it is made available as a transcript to colleges and universities.

Corporate-sponsored courses and degree programs, however, are a relatively small phenomenon in employee education. While over 400 corporate education and training buildings have "college," "university," "center," or "in-

stitute" in their name, very few actually grant degrees (Hodgkinson 1982b), and this area of employee education does not comprise a significant portion of employee training and education. Only 18 corporate colleges offer degrees (Eurich 1985; Hawthorne, Libby, and Nash 1983), but regional accrediting associations have awarded institutional accreditation to at least seven of the colleges. Among the corporate colleges currently offering degrees are College of Insurance (Insurance Society of New York); DeVry Institute (Bell and Howell); Watterson College (MetriData Corporation); Institute of Health Professions (Massachusetts General Hospital Corporation); the American Graduate School of International Management, formerly Thunderbird Graduate School, which offers an accredited master's degree in international management; American College (National Association of Life Underwriters), which offers accredited master's degrees in financial services and management; and the National Technological University, which offers five master's degrees in engineering specialties and uses videotapes of advanced engineering courses at 16 cooperating universities. Seven corporate facilities show the tapes to students, after which students send homework to the university that presented a particular segment (Eurich 1985).

Perhaps the best known of the corporate degree granters are the Arthur D. Little Management Institute, the Wang Institute, and the General Motors Institute (now GMI). Begun in 1973, the Arthur D. Little management program was first offered by universities in the United States. The program's master's degree in management is designed specifically for overseas managers (Noble 1981). During the 1960s, the Agency for International Development (AID) funded Arthur D. Little, Inc., and several universities to provide agricultural management education to students in developing countries. After the AID program ended, Arthur D. Little created the institute and continued the program on its own (Hawthorne, Libby, and Nash 1983). The students have come from 46 countries, ranging from Botswana to Venezuela. They are usually managers from multinational organizations, private companies, or government-owned enterprises. Arthur D. Little has granted almost 600 degrees through the program, which is

accredited by the New England Association of Colleges and Schools (Noble 1981).

The Wang Institute of Graduate Studies was founded in 1981 by Dr. An Wang of Wang Computers. It offers a master's degree in software engineering. The institute is not affiliated directly with Wang Computers; rather, it is a nonprofit and tax-exempt separate subsidiary that is also accredited by the New England Association of Colleges and Schools. The institute enrolls students from Wang and other companies; the 1981 class, for example, included employees from Digital, Honeywell, and Prime Computer (Noble 1981).

In 1926, the General Motors Corporation agreed to underwrite what was then the Flint Institute of Technology and extend the services of the institute to all areas of the corporation.* That decision was built on work started when the Industrial Fellowship League opened a night school for factory employees in 1916. Such industrial giants as C. S. Mott, Walter P. Chrysler, and Charles F. Kettering were instrumental in the establishment of the school. The General Motors Institute was for 56 years the only fully accredited undergraduate institution in the United States owned and operated by a corporation. It has graduated more than 18,000 engineers and offered baccalaureate degrees in industrial, mechanical, and electrical engineering and industrial administration. One of the forerunners in the cooperative education movement in the early 1920s, the institute gave employees of General Motors an opportunity to "learn and earn." In July 1982, the General Motors Institute began an independent institution now known as GMI. While General Motors still sends a substantial number of students to GMI, it is now open to students from other corporations. In addition to the five-year cooperative education programs, companies may also enroll their employees in graduate courses in manufacturing management (Mayer 1983).

The Bell and Howell Education Group, a wholly owned subsidiary of the Bell and Howell Company, has offered degree programs in business and computer science since 1979. In 1973, two employees from the Bell and Howell

*GMI 1984–85, internal document.

Education Group left to establish their own degree-granting entity. Ronald Taylor and Dennis Keller founded the Keller Graduate School of Management, a private, for-profit school that offers master's degrees in business administration. The Keller Graduate School has awarded more than 600 degrees since 1973 (Noble 1981).

Despite the attention that corporate-operated degree programs receive, the most common way that corporations offer degree programs to their employees is in cooperation with colleges and universities. Such programs are offered in four general ways:

1. One company works with one college to develop a program for employees.
2. Several colleges and universities offer courses or degree programs at one worksite.
3. A consortium of several companies work with one or more colleges in offering courses to employees.
4. Companies work with an external agency that has the authority to grant degrees.

An example of the first approach is the University of South Carolina's APOGEE (A Program of Graduate Engineering Education), which brings a full range of graduate engineering course offerings to NCR employees in the company's facility in Columbia, South Carolina. Each week, one regular class session for each course is videotaped on campus. The following day, the tapes are distributed to a number of remote locations across the state for viewing by off-campus registrants. Periodic trips to the University of South Carolina campus enable students to meet with the instructor privately, present homework problems, and take examinations (Settle 1981).

Another similar arrangement involves military installations. The University of Central Michigan, for example, currently offers a master's degree in management and supervision at military bases. The University of Maryland, Troy State University (Alabama), and St. Leo's College (Florida) also offer degree programs on military bases throughout the world.

One of the most extensive programs of the second type—several colleges or universities offering courses at one worksite—is sponsored by Digital Equipment Corpora-

tion, an international computer systems manufacturer (Leepson 1981, p. 10). Company employees have the opportunity to take courses at the plant in Maynard, Massachusetts, leading to bachelor's degrees in business administration and master's degrees in electrical engineering and business administration. Faculty members from Boston University, Clarke University, and Worcester Polytechnic Institute teach the courses. At the Digital plant in Merrimack, New Hampshire, the University of New Hampshire conducts an undergraduate degree program for approximately 2,000 employees.

The third arrangement—the consortium—is exemplified by the Piedmont Area Evening Degree Association, which is comprised of representatives from 18 firms in the High Point/Winston-Salem (North Carolina) area and High Point College to offer undergraduate degree programs for the firms' employees. Courses are offered at rotating plant sites (*ASTD National Report* 1980). According to the director of the program, the consortium used a planning committee to determine the courses to be offered and the site for courses. Individual companies work out the arrangements for payment of tuition and other related issues with their employees.

The fourth arrangement—companies working with a degree-granting body—is exemplified by the McDonald's Corporation's arrangement with the SUNY Regents External Degree Program for its employees. While the Regents program does not itself offer courses, it does accept credits from other sources and consolidates them on a master transcript. Employees of McDonald's can apply credits earned in company training programs that have been recommended for college credit by the American Council on Education, courses taken from accredited colleges and universities, credits from proficiency tests like CLEP, military courses that have been recommended for college credit by ACE, and special assessment. In addition to this program, McDonald's Hamburger University has petitioned the Illinois Board of Higher Education for the right to offer an associate degree.*

While these examples represent only a few of the many cooperative arrangements between colleges and corpora-

*McDonald's Corporation 1982, internal document.

tions, they illustrate the creativity used in defining collaborative degree programs. In addition to these efforts, many employees have enrolled in external degree programs offered by institutions for adults that have been out of school for some time (Sullivan 1983). Corporate-sponsored training programs include a broad range of activities and curricula, and the range of courses offered indicates the emphasis being placed on education and training by the corporate community and the opportunities that exist for employees, employers, and academic institutions.

CORPORATE APPROACHES TO EMPLOYEE EDUCATION AND TRAINING

The corporate community has relied on college professors, vendors, consultants, trade organizations, and other outside groups to provide some of the training for its employees, but it has become increasingly difficult to meet all a firm's training needs with outside sources. More and more companies have seen the need to design their own training programs in-house: The need for company-specific programs has increased. In-house training and education has grown for six reasons:

1. To introduce new employees or new managers to the organization and objectives of the business;
2. To provide rapid and accurate information on technological or scientific changes that affect the company or its products;
3. To ensure the professional growth of employees and provide opportunities for career flexibility;
4. To avoid travel and released-time costs associated with training given by outside institutions;
5. To provide the opportunity for training to be directly applicable at the job sites; and
6. To comply with legal and social responsibilities to expand opportunities for minority and disadvantaged groups (Branscomb and Gilmore 1975, p. 223).

Further, training done *internally* builds a spirit of camaraderie. Students from all areas of the corporation have the opportunity to become acquainted with each other and with other areas of the company. Many corporate educators believe that this aspect of team building may be the most important effect of training. "The schools are in many ways a perfect antidote to the feeling of insularity that often arises among disparate divisions of multifaceted corporations" (Deutsch 1984, p. 26). Such schools make the company way apparent. While generic, prepackaged courses can provide skills, they often do not provide students with enough of the company's wrinkles and specifics.

The employee training market is broad, and given the span of size and financial resources it includes, it is difficult to generalize about any of the components. "The only uniformity that can be found in the industrial training system is the certainty that, whatever the area of inquiry, there will be diversity in industry's theory and practice"

(Barton 1982, p. 98). Some similarities among the larger, more established programs, however, are important to note.

Corporate classrooms, for example, look very much like any college classroom, and they are organized in much the same way. Corporations publish catalogs of course offerings that are made available to employees and supervisors. Alumni-type groups are often established to continue the team spirit. Corporations have combined some of the best of the tried and true in traditional education with the latest technology and company-specific information.

Approach and philosophy still differ in some basic ways, however; according to Lynton (1981, p. 65), they differ in three ways: strategy, structure, and access. These differences have, not surprisingly, shaped the development of employer-sponsored programs. The *strategy* for offering industry-sponsored educational programs is first to develop the worker for increased productivity and profits, then for individual development. Traditional education's main concern, in contrast, is for the individual. The *structure* for business must be strict in terms of curriculum and content. It must relate specifically to increasing profits for the business yet be flexible in terms of scheduling and length of course. In traditional education, the structure is set to enhance the learning experience of the individual. Finally, the *access* in industry is usually limited to employees or customers of the specific firms. Traditional education's admissions policies range from open to very selective.

These approaches to educating employees have demanded that industry education be flexible in deciding on new and better ways of education. The theories of adult learning found their way into the corporate learning environment almost from the start. Training professionals are concerned primarily with "intentional learning" that has objectives, a plan of study, and evaluation included (Nadler 1984, p. 1.4). This charge insists that employee learning be structured in the most effective way to get the desired results.

Thus, teaching methods, evaluation techniques, and training facilities are three areas of corporate training that are quite important to the desired outcome. While the methodology varies depending on the type of training, many similarities can be found between industry-

sponsored and traditional education. The major difference is that the majority of industry education and training focuses on the applicability of the course to the employee's job. In much the same way that traditional education uses the case method of teaching, industry courses are often related to actual problems in the workplace.

Evaluation of learning is often as difficult in industry as it is in traditional education. Information about ways that students' work can be effectively graded or reviewed is still lacking. Although workers' performance on the job is one way of evaluating learning, most training or managerial staffs are not large enough to monitor employees' work in this way. More traditional methods of evaluation are usually applied.

The majority of industry education and training focuses on the applicability of the course to the employee's job.

Finally, training facilities, like courses, run the gamut in industry. They range from one room to complete centers. On the whole, however, instructional equipment used by industry and government surpasses that used in traditional institutions. Those companies that have committed themselves to employee training and education have the most modern equipment. For example, the largest single application of advanced instructional technology is the U.S. Navy's use of computer-managed instruction in its Basic Electricity and Electronics Course (*ASTD National Report* 1984d).

Teaching Methods

The methodologies used in industry training programs vary according to the company, type of training, level of employee, and categories of jobs. Some company courses are very structured and lengthy—apprenticeship programs, for example; others are highly structured yet much briefer with more limited increments of knowledge and skill—a training program for bank tellers that uses programmed instruction, lectures, discussion, and role playing in a three-week period, for example (Lusterman 1977, p. 53). Other parts of the training rely on individualized learning programs that do not have rigid requirements for time and completion.

The instructional method used most frequently by the respondents (74 percent) in a 1981 survey was planned, on-the-job training. The second and third most frequently used methods of instruction were the apprenticeship (52 per-

cent) and lecture, demonstration, and group discussion (45 percent). Other methods included self-study with training manuals, programmed instruction, job rotation, role playing, and case studies. Almost all the employers listed safety and industrial hygiene and specific job skills as primary subjects taught (Gorlin 1981, p. 41).

Nonmedia instructional strategies, many of them group activities, used in corporate education include brainstorming, case studies, the action maze, the Delphi technique, demonstration, discussion, gaming and simulation, interviews, learning contracts, lectures, programmed instruction, and role play (Malesky 1984, pp. 9.3–9.30). Organizations are encouraging teamwork and group problem solving as part of training.

Another survey also showed that on-the-job training was the most prevalent kind of training for office/clerical, professional/technical, plant/service, and first-line supervisors (Bureau of National Affairs 1977). The exception was among middle managers, where 96 percent of the respondents listed attendance at professional or trade association meetings and 89 percent listed attendance at outside job-related seminars as primary vehicles for management training. Only 65 percent of this employee group listed on-the-job training as a method.

Despite the significant investment by the firm required, increasing numbers of companies are using programmed self-instruction and audiovisual technology in employee training. Because of the expense, the use of media in training tends to be limited to larger companies.

The field of instructional technology is much broader than audiovisual instruction; it includes three broad areas:

1. *The use of a varied range of resources for learning, of which audiovisual resources are only one;*
2. *The investigation of individualized and personal learning; and*
3. *The use of a systems approach to facilitate the learning process* (Spector 1984, p. 10.3).

An area of instructional technology that has received a great deal of attention in recent years is programmed instruction. B. F. Skinner popularized the concept of "teaching machines" in 1954 with his "operant conditioning the-

ory." The principle of stimulus-response is the basis for some of the sophisticated programmed instruction in use today. Essentially, programmed instruction includes information (the stimulus), a required response, and feedback to the response, which includes positive and negative reinforcement (Spector 1984, p. 10.8).

Computer-based instruction[1] (learner-centered instruction) is applicable to academic, business, government, industrial, and even residential settings (Reynolds 1984, pp. 11.4–11.5). It is an important trend that has taken hold in industry and in traditional education. The use of computers for learning was actually pioneered through university research done by Donald Bitzer of the University of Illinois two decades ago. It was not until recently, however, that the technology and methodologies have been applied more widely.

Computer-assisted instruction is being used more widely in companies (Lusterman 1977, pp. 54–55). This type of instruction is different from computer-managed instruction in that more than half the course involves interaction between the student and the computer terminal. The other portion is spent with other forms of self-study, including books, films, microfiche, and tapes. The start-up costs are much greater than for programmed instruction, in some cases requiring as much as 100 hours of preparation per student hour. At IBM,

> *Management stresses the necessity of using cost-effectiveness and cost-benefit criteria for the selection of new education media, such as television and computer-assisted instruction, as well as in the choice of new educational techniques, such as learner-paced instruction* (Lusterman 1977, p. 55).

Computers are likely to be used even more in teaching as the costs of technology decline and as personal computers become more prevalent (Reynolds 1984, p. 11.13).

Alternative delivery systems for offering education and training to employees are being used more widely. The

[1]The terms "computer-based learning," "computer-assisted instruction," "computer-managed instruction," and "computer-supported learning resources" are used interchangeably, although their meanings differ slightly.

National Technological University (NTU), whose home office is in Fort Collins, Colorado, offers master's degrees using classes videotaped at 16 cooperating universities. Currently, 270 students are enrolled in NTU programs. The goal is 5,000 students, using a variation of videotapes and teleconferencing (Bowen 1985, p. 75).

While teleconferencing is not used widely, evidence suggests that it will be. Universities are using videophone lectures and teleconferencing with their corporate classes. Texas Instruments and several other corporations have an arrangement with the University of Texas at Dallas for an interactive videophone series of lectures. Stanford University uses interactive technologies with its more than 160 corporate classes. The Massachusetts Institute of Technology sponsored a two-week course on television in computer programs for Hewlitt-Packard. Hewlitt-Packard, which owns the nation's largest industrial satellite, broadcast the program to eight locations across the country from its San Jose, California, studio (Bowen 1985, p. 75).

While the applications have taken us beyond our expectations of a brave new world, they give educators in all sectors even more of a preview of what could be. If the cost of equipment for educational technology declines and travel costs increase, corporations may look for more ways to educate their employees at their home location—and in some cases their homes.

A number of corporations are emphasizing individual-centered learning, and a number of companies are sponsoring more and more independent learning activities. The NCR Education Center (Sugar Camp) in Dayton, Ohio, for example, houses an independent learning center where students can work at their own pace. The center offers approximately 70 courses, ranging from systems software to management for NCR employees. Video cassette recorders, video playback equipment, and audio cassettes are included in its equipment inventory (NCR 1982a).

Despite the advances in technology and methodologies, the most commonly used training method in industry is still the lecture (*Training* 1983), and more than 70 percent of all industrial training uses lectures, overhead projectors, video cassettes, role playing, slides, case studies, and 16mm films. The most common forms of delivering training (45

percent) are seminars and workshops developed and delivered in-house.

The early years of the development of educational technologies saw many difficulties: Instructors were reluctant to use the technology, equipment broke down, and materials were poorly designed and selected. The fascination with gadgetry superseded the careful selection of course material and its designated uses. More recently, however, trainers have been more cautious in choosing learning materials and the appropriate technological aids. Such factors as the learner's background, previous educational experience, objectives to be attained, evaluation methods to be used, and the instructor's background are of concern when choosing educational technologies (Spector 1984, p. 10.23).

Corporate trainers are educators with a targeted population. They, like faculty in traditional settings, want learning to occur in a specified time period under certain conditions. The individualized methods of training used in industry correlate positively with how adults learn best, and they are increasingly based on Knowles's (1984b) work on andragogy. Adult learning has certain special characteristics: Adults have different rates and styles of learning and the learning situation should fit that style as much as possible; adults (much more than children) enter training with a wide array of educational and life experiences to be accommodated; and adults may have numerous learning goals that need to be acknowledged when they are achieved. General Electric, Lloyds Bank of California, DuPont Company, and the American Management Association are examples of organizations that have applied andragogical principles (Knowles 1984b).

In this vein, a proposed approach to teaching adults in the industrial setting would incorporate many of these theories of teaching adults (Mouton and Blake 1984). This approach, termed "synergogy," differs from traditional pedagogy and Knowles's andragogy in four ways:

1. *Replacing authority figures with learning designs and instruments . . . managed by a learning administrator.*
2. *Enabling learners to become proactive participants who exercise responsibility for their own learning.*

3. *Applying to education the concept of "synergy" in which the learning gained from teamwork exceeds the gain made by individuals alone.*
4. *Using learners' colleague affiliations to provide motivation for learning* (Mouton and Blake 1984, p. 9).

This approach has combined recognized corporate goals, such as teamwork and learner-centered education, to form a framework for organizing training and educational programs. It is just one approach that has been developed that considers the learning of adults in a different way.

Evaluation of Corporate Training

Evaluation of education and training programs has been as difficult for industry as it has for traditional education. In 1954, only one company in 40 had any scientific approach to the evaluation of training and education programs for supervisors (French 1954). In a study done in 1961, the evaluation portion of the training budget was less than 5 percent (Shafer 1961). More than a decade later in a study of 100 large corporations, none of the 50 respondents applied the same degree of financial analysis to their training programs as they did to capital and equipment acquisitions (Clark and Davis 1975, p. 186). Sophisticated means of assessing the effectiveness of most training programs are simply not available.

A cost-benefit evaluation of training programs would be helpful in two ways. First, it is important to determine whether specific training adds to a worker's productivity and, if so, what kinds of training are most beneficial. Second, trainers and management should identify the most productive kinds of training for the training dollar (Goldstein 1980, p. 49). Admittedly, some difficulties are inherent in conducting evaluations. Control groups, for example, are very difficult to establish. "Control groups of rats in a laboratory do not feel discriminated against, do not file grievances, do not go on strike; no one considers that they have to be treated like human beings" (Goldstein 1980, p. 50).

Some of the most important problems with the evaluation of training programs, however, are financial, political, and psychological. Management often feels that efforts to evaluate programs are too expensive. Training programs

themselves are often underfunded, and the expense of evaluation is eliminated during slow business periods. Further, individuals in the corporation often feel threatened by the suggestion of evaluation. They are concerned that the training program and the potential for promotion and compensation of the training staff will be jeopardized. Finally, the lack of expertise about evaluation methods often prevents the necessary research and limits the effectiveness of the process (Woodington 1980, p. 328).

Kirkpatrick's (1976) framework for classifying areas of evaluation answers an important part of the problem. It involves four levels of response: reaction by the learners, learning derived from the program, behavioral change resulting from training, and results for the organization. Several assumptions have been made about this framework. First, information becomes more important to the company as one moves from reaction to results. Second, the reaction of learners is the most frequently used criterion for evaluation and results the least frequently measured. Finally, it is easier to determine reactions and not results; thus, the most critical part of the evaluation is often not done (Phillips 1984, p. 12.6).

Management is becoming much more aware of the need to evaluate training programs. To begin measuring the effectiveness of training new employees, their supervisors are being surveyed, sales records are being checked before and after training, and turnover rate and incidence of promotion after training are being analyzed (Clark and Davis 1975, p. 17). A more objective approach to evaluation might be to require profit centers in the company to buy their training from the training department. The results might be a more critical clientele.

Despite the lack of sophisticated methods of evaluation, most executives believe that their company's training objectives are being met (Lusterman 1977, p. 58). About 50 percent of the respondents in Lusterman's study indicated that programs for new employees are meeting the objectives very well; fewer than 5 percent of those surveyed disagreed.

Evaluation continues to receive more and more attention as the training budget rises. Not only the participants/students, but also the supervisors, are asked to evaluate the course or program. An executive at the John Hancock

Mutual Life Insurance Company reported that his staff debriefs all who attend outside training programs. If several bad reports are given, the program is dropped (*Business Week* 1977).

These reasons emphasize the critical need for quantitative evaluation of employee training programs wherever they are offered. Before programs are developed, a philosophy of evaluation must be developed (Phillips 1983). That is, results will be measured and the method will be included in the program design.

Hard data (output, costs, time, and quality) and soft data (work habits, work climate, feelings/attitudes, new skills, development/advancement, and initiative) must be collected for each training program (Phillips 1984, pp. 12.7–12.21). Hard data are objective, are easier to measure quantitatively and to assign dollar costs to, and are credible standards for management to use. Soft data, on the other hand, are subjective, harder to measure, and usually behaviorally oriented. Hard data are the key to solid evaluation, and they can be collected in numerous ways: testing; feedback from learners, supervisors, subordinates, peers, and trained observers; follow-up evaluation of the learner at a predetermined time after the program is completed; performance contracts; and simulation of actual work situations. Soft data are easier to collect, however, and trainers all too often rely on it as a principal evaluative source (Phillips 1984).

Competency Studies

Competency studies are an important new trend in corporate training related to learning and evaluation; they identify competencies that managers and other job categories need to be most effective in a position. Three important studies have been conducted in recent years: by the American Management Association and McBer and Company, by the Hughes Aircraft Company, and by the American Society for Training and Development.

The AMA/McBer study found that certain competencies are directly related to job efficiency. The competency of managers creates efficiency in organizations (Boyatzis 1982). Therefore, the study was designed to "determine which characteristics of managers are related to effective

performance in a variety of management jobs in a variety of organizations" (p. 8). To do so, an aggregate sample of over 2,000 managers in 41 different management jobs in 12 organizations was surveyed. Nineteen managerial competencies were identified under five primary categories (goal and action management, leadership, human resource management, directing subordinates, and other) (see table 1).

Although the AMA/McBer study was a first step in the research, it attempted to define activities that would help

TABLE 1
MANAGERIAL COMPETENCIES IDENTIFIED BY AMA/McBER STUDY

Goal and Action Management
- Efficiency orientation
- Proactivity
- Diagnostic use of concepts
- Concern with impact

Leadership
- Self-confidence
- Use of oral presentation
- Logical thought
- Conceptualization

Human Resource Management
- Use of socialized power
- Positive regard
- Managing group process
- Accurate self-assessment

Directing Subordinates
- Developing others
- Use of unilateral power
- Spontaneity

Other
- Self-control
- Perceptual objectivity
- Stamina and adaptability
- Concern with close relationships

Source: Boyatzis 1982.

meet the goals of competency. Such activities as improved job design, diagnosis of a firm's management system, improved performance appraisals related to competencies, and selection and promotion systems based on needed competencies were identified (Boyatzis 1982, pp. 241–53).

The findings from the AMA/McBer study were incorporated into the AMA's Masters in Management program, a program designed to develop managerial competence in practical, comprehensive ways building on stages of adult competency development. By using the generic characteristics identified by the AMA/McBer study, competencies related to managerial performance would be addressed that might not be in other graduate programs (Boyatzis 1982, p. 255).

The Hughes Aircraft Company study, conducted from 1973 to 1977, surveyed 2,350 research and development managers and senior technical staff in 59 organizations. While the purpose of the study was to determine factors contributing to productivity and efficiency in research and development, it has had wider applicability. The study had two important findings. First, organizational climate is important to productivity. Such things as a stable job climate, high work standards, clearly understood organizational objectives, and a climate favorable to career planning were among the seven characteristics identified. Second, effective supervision is critical to productivity. Among the 20 supervisory competencies identified were matching individuals to the most suitable job, involving subordinates in planning, goal setting, decision making, effective two-way communication, and knowing the strengths, weaknesses, and personalities of subordinates (Pouliot 1984, pp. 15.7–15.10).

ASTD's competency study (1983) was aimed at the field of human resource development. It was designed and implemented to better define the role of training and development in the field, and it accomplished three important tasks:

1. It determined the competencies to perform primary roles in the field.
2. It defined outputs and results of training work rather than tasks and activities.
3. It anticipated future requirements for competency.

Training and Education Facilities

Corporate educational facilities range from a single room to multipurpose conference rooms to rented rooms at nearby hotels to elaborate education complexes. A growing number of corporations now have more elaborate complexes, and facilities that include housing, feeding capacity, and meeting rooms are becoming more common. This trend toward comprehensive training and education centers began in the 1950s, when IBM, General Electric, and others built their first training centers.

Although many corporations maintain primary training facilities, training is also usually done at other sites, at branch offices, and through independent learning systems. Many corporate training centers exist throughout the United States, and the following descriptions are only a few examples of corporate campuses.

1. **NCR's Education Center, Sugar Camp,** is located in Dayton, Ohio, and provides courses for employees in sales, sales support, management, and products and systems, as well as education for customers on products and services. The educational center provides 220,000 employee-days of education annually. It has 28 classrooms, numerous conference rooms, a computer center, an independent learning center, a 450-seat auditorium, and dining facilities. Classrooms have a full range of audiovisual aids: movie, slide, and overhead projectors; closed circuit television systems; and speaker and intercommunication systems. The auditorium and two classrooms are wired for translating lectures into six languages (NCR 1982a). Housing is provided at nearby hotels.
2. **The Bell System Center for Technical Education,** established in 1968, is located in Lisle, Illinois, and is the major site for Bell System technical training. The center is divided into four areas: forecasting, engineering, business services, and network operations (Luxenberg 1980, p. 314). The Lisle center employs more than 500 administrators, faculty members, and curriculum specialists and offers programs to more than 30,000 students each year (not all of whom are Bell employees). In 1980, AT&T spent about $1.7 billion for employee education (Watkins 1983, p. 1).

3. **The Xerox Center for Training and Management Development** is in Leesburg, Virginia, and offers residential training programs for employees from throughout the world. Opened in 1974, the center trains over 20,000 employees each year in sales, service, and management (Leepson 1981, p. 4).
4. **New England Telephone's Training Center** in Marlboro, Massachusetts, has well-equipped classrooms, dormitories with private baths and television, and complete dining facilities. Company instructors teach more than 200 courses at the center. More than 9,000 employees attended courses in 1982 Bricknell and Aslanian 1981).

Other well-known centers are McDonald's Hamburger University (Elk Grove, Illinois), Martin Marietta's Orlando Aerospace (Orlando, Florida), the Control Data center (Minneapolis, Minnesota), and Holiday Inn University (Memphis, Tennessee). Such facilities represent the kind of financial commitment that corporations have been willing to make to provide quality employee education.

Corporate education's methods of teaching and evaluation are often more advanced and more oriented toward outcomes than in traditional education. The comprehensive corporate centers usually surpass those found on traditional campuses. Employees are taught with the most technologically advanced teaching aids in physical environments that are conducive to adult learning styles. Corporations are clearly in the education business, and their investments in time, money, and facilities are aimed at ensuring that learning continues and is productive for the company.

Universities and colleges interested in employee training must realize the sophistication and organization of many corporate training departments. Much can be learned from the corporate community's years of experience in training adults.

WORKING WITH EACH OTHER: Summary and Conclusions

> *In times of change, we should like to know on which wave we are floating, but we ourselves are the wave.*
>
> —Anonymous

Despite the endless debate on who should be doing what to educate the American workforce, it is clear that enough work remains to be done to involve all the players. The economy is becoming oriented more toward human capital, our system of postsecondary education and the participants are changing, and demands for education and training are increasing. How to develop a synergistic, positive relationship between the academy and the corporation is the question.

Two myths are apparent: first, that the increase in internal employee training and education is a result of a nonresponsive educational system; and second, that all traditional education can best be provided by traditional educating institutions. Both have hampered the understanding of the training problem in the country and the thinking about solutions.

Traditional education has never been the end-all and be-all for learning, and it was not until the twentieth century that one's credentials became an issue at all. For centuries, the workplace, the church, the home, and the community have taken part in that responsibility. While colleges and universities, public schools, proprietary schools, and independent schools continue to be among the many types of educating institutions, industry, government, labor unions, museums, and consulting firms have joined the ranks.

What then is the appropriate role for higher education in educating the nation's workforce? Clearly, no one answer is correct. Colleges and universities can work with business and industry in many ways to educate and train their employees, ranging from providing direct instruction in the workplace on a predetermined topic to providing more flexible scheduling of classes for the convenience of workers. Endless possibilities for collaboration fall in between.

The determination of the appropriate role lies with the individual institution. Such factors as institutional mission, available faculty, facilities, financial resources, leadership, strengths of the academic program, location, and student services all play a part in that determination. Some institu-

tions simply do not have the mission or structure to work with adults. Many organizations, however—among them colleges and universities, business and industry, not-for-profit institutions, and proprietary institutions—do have the structure and are actively seeking this audience. That fact cannot be escaped. The real task for the college or university administrator is to find the most appropriate course for his or her particular institution.

The charges that traditional education will be replaced by other entities unless it makes some substantial changes are probably exaggerations. While corporations do play a large role in the education of adult employees, it is highly unlikely that they will usurp the role of traditional educational institutions. What is likely to happen—in fact is happening—is that traditional education will be considered only a part of the educational sphere rather than the hub. Even so, education need not set its goals by the corporate clock; rather, traditional education must be clear about the kinds of roles it can best perform and understand the milieu in which it is operating.

Working with Business and Industry

Working with the corporate world is not an easy task, nor should it be taken lightly. The days of trying to sell the same Accounting 101 course to 18-year-old freshmen and 40-year-old bookkeepers are over. Business and industry have specialized course syllabi. In fact, industry may not have needs that translate to length, format, or content of a course. Its interest may be in the acquisition of specific skills with very specific outcomes. The commitment to work with industry is not a tactical move but a strategic one, and institutions that see corporations merely as a way to make up for lagging traditional enrollments should reconsider. Colleges and universities should see employee education not as a "filler" for one or two years but as a long-term proposition.

How then should higher education think about working with industry? Colleges must maintain quality in their programs with corporations and satisfy four behavioral characteristics—flexibility, creativity, responsiveness, and opportunism—before approaching the industrial training market (Settle 1981, p. 6). Professional associations and private enterprises are competing with higher education

because they are both willing and able to implement those characteristics. Additionally, however, traditional institutions need to develop a thorough understanding of industry's educational needs. The process can begin or be further developed in several ways:

1. Create advisory boards of managers and supervisors of local industry to discuss and determine current needs and how those needs are being met, how the institution's curriculum could be more applicable, and ways that courses could be offered at the corporation's facilities.
2. Establish programs where local executives spend time on the campus through executives-in-residence programs or shorter one-day experiences.
3. Organize a faculty group, perhaps coordinated through the industry advisory committee, to visit businesses on site to determine the kinds and types of work done.
4. Explore the options of courses offered in nontraditional ways at hours applicable to working adults; discuss them with businesses. The PONSI and Regents programs are excellent ways for employees to receive recommendations for college credit.
5. Develop with industry an exchange program for faculty that would allow them to work in a business for a specified period (Settle 1981, p. 7).
6. Consider with colleges and universities the feasibility of using advanced instructional technology such as teleconferencing and computer-assisted instruction for employee programs, which will be increasingly important for corporations with branches or those that are located in remote areas.

It is highly unlikely that [corporations] will usurp the role of traditional educational institutions.

These initial steps can help to acquaint employers and educational institutions with each other's strengths and needs and stimulate arrangements that could be of benefit to both. A key element in all the steps is for both parties to listen and explore options with each other. Successful collaboration requires cooperation and communication from both business and education.

Internally, the institution must look at its own purposes and resources. Partnerships between education and indus-

try will vary according to circumstances (Lynton 1983, p. 90). For example, it might be best for one department or school to work with a company rather than the institution as a whole. Other situations might call for the involvement of the institution or a consortium of institutions. In fact, some organizations are calling for consortium proposals for their employees to maximize the community's educational resources. Colleges and universities should keep their options open.

Concurrent with discussions with businesses, educational institutions must be cognizant of some critical points in employee training. In the development of training proposals, educators must recognize the different needs of companies, the needs of different industries, and the needs of different companies within the same industry (Whitlock 1982, pp. 108–10). The type of company (service or manufacturing), its size, and its organizational structure can affect how the company or industry trains its employees. These distinctions are important because the approach to education and training may be quite different, depending on the firm's characteristics. Companies that are product driven and capital intensive view training as a cost of selling or promotion that can be linked to a specific product line. A labor-intensive service firm whose revenues are based on worker-hours might regard training as an overhead expense. And the size and the amount of decentralization in a company could affect its approach to training. It is necessary to find the person in charge of making training decisions.

Although traditional institutions should consider the training needs of large companies like IBM or Xerox, the real training market is probably in mid-size or small firms in the institution's community. Big companies have established programs and may have minimal interest in relinquishing any of their training to traditional education. Educational institutions can have their greatest impact on the less developed programs (Whitlock 1982, pp. 108–10). Small firms employ the largest number of the nation's employees and are least able to afford employee training programs (Choate and Epstein 1982).

Institutions of higher education must also think about how they relate to adult students generally and adult work-

ers specifically. Despite the volumes written on differences between traditional and nontraditional students, many institutions have found it difficult to change their structure to accommodate adults. Institutions should examine five areas before entering the adult education market:

1. ***environment:*** *where, when, and how learning takes place;*
2. ***pedagogy:*** *relationship between didactic and experimental pedagogies;*
3. ***linkage:*** *relationship to other aspects of one's life (e.g., employment);*
4. ***product:*** *degrees, certificates, recertification, as well as other indicators of participation and involvement; and*
5. ***economy:*** *both financing patterns and pricing policies* (Jacobs 1981, p. 12).

These five variables, implemented in traditional ways, can serve as major barriers for adult students.

While institutions understand the advantages of working with corporations to educate their employees, it is often difficult to make the first step. Colleges and universities can follow the following basic considerations when entering or expanding their relationships with business:

1. Survey businesses in the service area to determine training needs and businesses' responses to the needs.
2. Review their own mission, role and scope, and faculty resources to determine whether they can appropriately supply the training and education needed by industry, business, and government.
3. Bring local business people together and talk about everyone's interests. Begin to put in place the expertise necessary to analyze needs. Find the right people on campus to work with this new clientele.

Institutions need to consider the institutional barriers that may prohibit collaboration. The institution may choose to maintain the status quo, but it should understand

the limitations that barriers like scheduling, availability of financial aid, and parking may have in working with adults.

Working with Traditional Educational Institutions

To best use the resources available, business and industry should understand how traditional institutions function and how they can best benefit from them. Corporations might consider the following points when considering working with a traditional institution:

1. In planning a training and education program, business and industry should investigate offerings at nearby colleges and universities, including the availability of evening and weekend courses, the scope of the continuing education division, the particular strengths of relevant academic areas, fee structures, optional degree programs, alternative credit options such as the college-level examination program and credit for prior learning, policies relating to the transfer of credits, and admission requirements.
2. Company training personnel should meet with the institution's president, academic dean, and director of continuing education to express interest and request information. Going to the top first may eliminate some problems later.
3. Companies should review their past training efforts as well as current and anticipated future needs with college and university representatives. Perform a needs analysis or ask the institution to do so.
4. In calculating the costs of offering a new training program, business and industry should consider initial costs like time spent by the company's instructor in preparation, overhead, and so forth. One-time courses can often be taught for much less by someone outside the company whose fringe benefits and overhead the firm does not have to pay.
5. Companies should investigate other advantages of working with colleges and universities—access to facilities and cultural events, the opportunity for better information and access when recruiting traditional students for employment, a knowledge of new research trends and practices, and the structure for earning a degree.

Conclusions and Considerations for Employers and Traditional Education

The corporate training sphere is broad. The giants in the area have the most advanced equipment, exceptional facilities, and highly qualified developmental and teaching staffs. On the other end of the continuum are small companies with no training staffs or with the function assigned to the lone personnel director. Although the publicity is understandably focused on the large, well-established corporate training programs, the real needs are likely elsewhere.

While aspects and characteristics of training programs vary greatly by industry and by company, some useful generalizations can be drawn using the five primary areas of students, faculty, finances, courses, and physical plant. These categories can serve as the criteria for drawing some conclusions about what the corporate training landscape looks like.

- **Students:** Students who enroll and participate in corporate-sponsored training tend to be employees of that particular company, but vendor-sponsored programs or programs offered by professional associations are available for employees from a number of companies. Wang's master's program, for example, has several computer companies represented. Students' ages range from 18 to 65, possibly in the same class. They come from all kinds of academic and professional backgrounds, and they generally have expected outcomes from the program. Whether training is voluntary or prescribed, it is usually viewed as a chance for advancement. And while most employee groups receive some type of training, white collar workers receive 75 percent of all formal training yet comprise only 50 percent of the workforce (Carnevale and Goldstein 1983, p. 55).
- **Faculty:** Faculty for employee programs are company line managers, corporate trainers, consultants, or college/university professors. Inside people tend to teach company-specific courses, while outsiders usually teach general courses. As the training enterprise builds, more and more vendors are tailoring their courses to an individual firm's specifications. Never-

theless, traditional education is still the largest provider of outside training and of degree and credit programs (Carnevale and Goldstein 1983, p. 72).

- **Finances:** Corporate education and training can be financed by direct allocation in a line-item budget, by a fixed percentage of overhead, or on an "as needed" basis. Larger firms have training and education budgets, but these budget figures rarely reflect all the costs of training. Such items as the loss of work time for the occupied student and travel costs are often not figured. A company's profitability (or the status of the economy) can affect the amount invested in training. Employee education is often the victim of the "last in, first out" principle. In fact, trainers are often reluctant to discuss specific figures, fearing that high costs will jeopardize the amount able to be offered (Carnevale and Goldstein 1983, p. 34).

- **Courses:** Courses offered by industry range from half-day courses on any of hundreds of topics to degree programs. Many firms offer training as needed and do not have goals or a specific plan for maintaining a training program. Larger firms, however, have a set curriculum. The training offered by business and industry cannot always be translated to anything resembling a college-level course.
- **Physical plant:** More and more companies are designating buildings, rooms, or floors exclusively for training. These facilities range in sophistication from a classroom to centers equipped with audio/video studios, teleconferencing capabilities, and eating and sleeping accommodations. The equipment available in some training facilities surpasses that in colleges and universities.

While these descriptions are very general, they indicate the vast range of corporate training programs. The corporate training market is not oversubscribed. It is an open area for exploration by colleges and universities. Higher education and business have the opportunity to form a teaching/learning partnership in many mutually beneficial ways other than the research arrangement (Crosson 1983, pp. 82–83). Working together to meet employees' more

prevalent educational needs can benefit both traditional education and the employer:

1. Industry has developed sophisticated methods of teaching that are applicable to traditional education. Computer-assisted instruction, self-paced instruction, and programmed instruction have long-established histories in the corporate sector.
2. Employees provide a potential student pool for higher education in both credit and noncredit areas.
3. Traditional institutions have the benefits of research activities that may be applicable in the workplace. Further, they provide cultural opportunities and recreational resources that employees could enjoy.
4. Working with traditional institutions may be more economical and more productive than doing all training and education in-house. Institutions may help corporations determine a plan for long-term needs.
5. Working together can help both parties better understand the skills needed by traditional-aged students.

Education and industry should study other issues, however, when considering collaboration. These questions should not hamper collaboration but should clarify the issues.

1. **Curriculum development:** Do courses offered by industry fall into a coherent pattern to maximize students' learning and teaching effectiveness? Are the segments of learning cumulative? Who determines the length and content of the courses?
2. **Academic freedom:** Do instructors have the right to bring their own thoughts and opinions into the classroom? Is material to be taught prescribed? Are different points of reference important to the corporation?
3. **Student accountability:** Are students held accountable for learning and applying what is taught? Does a student evaluation system exist?
4. **Privileged information:** How much that is taught is confidential to the company? Could the course material be disseminated outside the company?

Real opportunities exist for traditional education to work with corporations, government, and labor unions to educate the workforce. But structures and attitudes must change on both sides. Traditional education must lay down the mantle of being the only real "educator" in society. Corporations, government, and labor unions must recognize that some procedures and administrative rules are necessary to maintain quality. Both must see that educating adults is different from educating traditional students and that innovative ways to teach them are necessary. Both sides must listen, for it is hard to learn when doing all the talking. Finally, all organizations involved should participate as full partners and share the responsibility.

> *The necessary sharing of authority with regard not only to what programs are needed, but also to what they should contain, does not diminish the inescapable responsibility of a faculty and an academic institution for the quality and standards of their educational offerings, be they for credit or not* (Lynton 1983, p. 88).

The opportunities and the need exist for more joint partnerships in educating employees. It is a long-term need that deserves the nation's best thinking and resources. Leadership from all parties involved—traditional institutions, corporations, business, government, unions, and not-for-profit organizations—must recognize that responsibility and potential.

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